United States Nuclear Regulatory Commission

Protecting People and the Environment

NUREG-2176, Vol. 3

Environmental Impact Statement for Combined Licenses (COLs) for Turkey Point Nuclear Plant Units 6 and 7

Final Report

Appendices A to K

U.S. Nuclear Regulatory Commission
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Washington, DC 20555-0001

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Appendices A to K

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Final Environmental Impact Statement for the Combined License (COL)
FOR THE TURKEY POINT NUCLEAR PLANT

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ABSTRACT

This environmental impact statement (EIS) has been prepared in response to an application submitted to the U.S. Nuclear Regulatory Commission (NRC) by Florida Power & Light Company (FPL) for two combined construction permits and operating licenses (combined licenses or COLs). The proposed actions related to the FPL application are (1) NRC issuance of COLs for two new power reactor units (Units 6 and 7) at the Turkey Point Nuclear Power Plant site in Miami-Dade County, Florida, and (2) U.S. Army Corps of Engineers (USACE) decision to issue, deny, or issue with modifications a Department of the Army (DA) permit to perform certain dredge and fill activities in waters of the United States and to construct structures in navigable waters of the United States related to the project. The NRC, its contractors, and USACE make up the review team. The National Park Service (NPS) is also a cooperating agency on this EIS but does not now have a request to take any specific regulatory action before it. Due to this unique set of circumstances, impact determinations made in this EIS should only be attributed to the review team. This EIS documents the review team's analysis, which considers and weighs the environmental impacts of constructing and operating two new nuclear units at the Turkey Point site and at alternative sites, including measures potentially available for reducing or avoiding adverse impacts.

The EIS includes an evaluation of the impacts of construction and operation of Turkey Point Units 6 and 7 on waters of the United States pursuant to Section 404 of the Clean Water Act and on navigable waters of the United States pursuant to Section 10 of the Rivers and Harbors Act of 1899. The USACE will base its evaluation of FPL's DA permit application, on the requirements of USACE regulations, the Clean Water Act Section 404(b)(1) Guidelines, and the USACE public interest review process.

After considering the environmental aspects of the proposed action before the NRC, the NRC staff's recommendation to the Commission is that the COLs be issued as proposed. This recommendation is based on (1) the application, including the Environmental Report (ER), submitted by FPL; (2) consultation with Federal, State, Tribal, and local agencies; (3) the review

team's independent review; (4) the consideration of public comments received on the environmental review; and (5) the assessments summarized in this EIS, including the potential mitigation measures identified in the ER and this EIS.

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EXECUTIVE SUMMARY

This environmental impact statement (EIS) presents the results of a U.S. Nuclear Regulatory Commission (NRC) environmental review of an application for a combined construction permit and operating license (combined license or COL) for two new nuclear reactor units at a proposed Turkey Point site in Miami-Dade County, Florida. The U.S. Army Corps of Engineers (USACE) participated in the preparation of the EIS as a cooperating agency and as a member of the review team, which consisted of the NRC staff, its contractor staff, and the USACE staff. The National Park Service (NPS) participated in the environmental review as a cooperating agency by providing special expertise for the areas in and around the adjacent national parks (Biscayne and Everglades National Parks). The NPS does not have a request to take any specific regulatory actions related to the proposed COLs before it. Due to this unique set of circumstances, all impact determinations made in this EIS should not be attributed to NPS, but only to the NRC and USACE (also referred to as the review team). The NPS's participation in connection with this EIS does not imply NPS concurrence.

Background

On June 30, 2009, the Florida Power & Light Company (FPL) submitted an application to the NRC for a combined construction permit and operating license (combined license or COL) for Turkey Point Units 6 and 7.

Upon acceptance of FPL's application, the NRC review team began the environmental review process by publishing a Notice of Intent to prepare an EIS and conduct scoping in the *Federal Register* on June 15, 2010. As part of this environmental review, the review team did the following:

- conducted public scoping meetings on July 15, 2010 in Homestead, Florida
- conducted a site visit of the proposed Units 6 and 7 plant area on the Turkey Point site in June 2010
- conducted visits to alternative sites in July 2010
- reviewed FPL's Environmental Report (ER)
- consulted with Tribal Nations and other agencies such as the U.S. Fish and Wildlife Service (FWS), Advisory Council on Historic Preservation, Florida Fish and Wildlife Conservation Commission, National Marine Fisheries Service, Miami-Dade Office of Historic and Archaeological Resources, and Florida Division of Historical Resources
- conducted the review following guidance set forth in NUREG-1555:
  - "Standard Review Plans for Environmental Reviews for Nuclear Power Plants
  - Supplement 1: Operating License Renewal"
- considered public comments received during the 60-day scoping process from June 15, 2010 to August 16, 2010

- conducted public meetings on the draft EIS on April 22, 2015, in Miami, Florida, and on April 23, 2015, in Homestead, Florida
- considered public comments received during the comment periods for the draft EIS, which extended from March 5 to May 22 and from May 28 to July 17, 2016.

Proposed Action

FPL initiated the proposed Federal action by submitting an application for Turkey Point Units 6 and 7 to the NRC. The NRC's Federal action is issuance of COLs for two Westinghouse AP1000 reactors at the Turkey Point site near Homestead, Florida.

The USACE is a cooperating agency in preparation of this EIS. The USACE's Federal action is its decision of whether to issue, deny, or issue with modifications a Department of Army (DA) permit pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899 to authorize certain construction activities potentially affecting waters of the United States.[1]

Purpose and Need for Action

The purpose of the proposed NRC action, issuance of the COL, is to provide for additional baseload electric generating capacity for use in the FPL service territory.

The USACE determines both a basic and an overall project purpose pursuant to the Clean Water Act Section 404(b)(1) Guidelines, 33 CFR § 230.10. The basic purpose is to meet the public's need for electric energy. The overall purpose is to meet the public's need for reliable increased electrical baseload generating capacity in FPL's service territory.

Affected Environment

The Turkey Point site is located in southeast Miami-Dade County, Florida, near Homestead (Figure ES-1). Turkey Point Units 6 and 7 would be located on the same site as the existing Turkey Point site, which has five other power plants, including two nuclear power reactors. Turkey Point would be located 25 mi south of Miami and 4.5 and 8 mi east of Homestead and Florida City, respectively. The primary source of cooling water would be reclaimed wastewater and the alternative source would be saltwater supplied from radial collector wells beneath Biscayne Bay. The ultimate heat sink for Turkey Point Units 6 and 7 would be the atmosphere, using three mechanical draft cooling towers per reactor.

(1) Waters of the United States" is used to include both "waters of the United States" as defined by 33 CFR Part 328 (TN1683) defining the extent of USACE geographic jurisdiction pursuant to Section 404 of the Clean Water Act and "navigable waters of the United States" as defined by 33 CFR Part 329 (TN4770) defining the extent of USACE geographic jurisdiction pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. § 403) (TN4768).

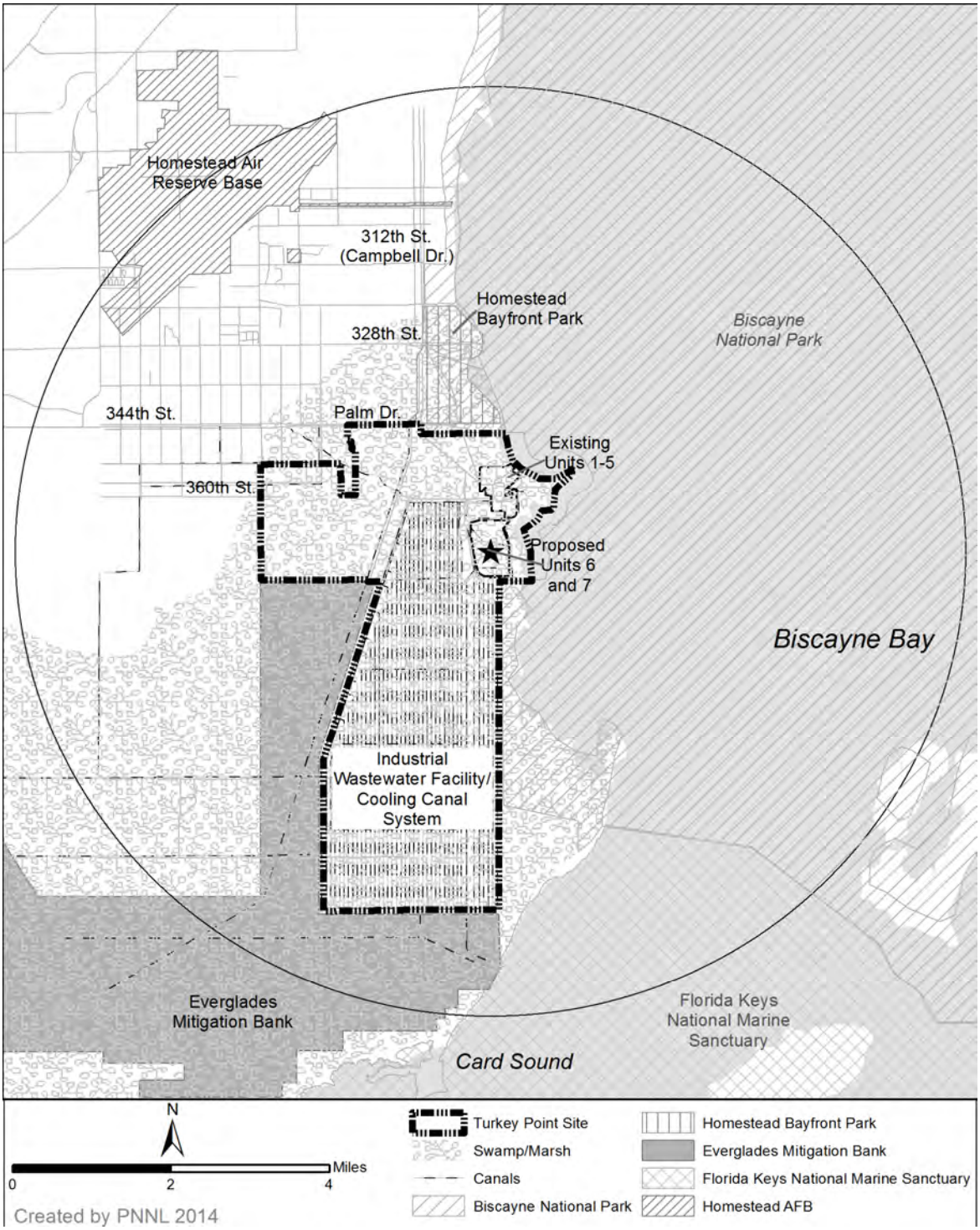

Figure ES-1. The Turkey Point Site and Affected Environment

Evaluation of Environmental Impacts

This EIS evaluates the potential environmental impacts of the construction and operation of the two new nuclear plants proposed for the Turkey Point site related to the following resource areas:

- land use
- air quality
- aquatic ecology
- terrestrial ecology
- surface and groundwater
- waste (radiological and nonradiological)
- human health (radiological and nonradiological)
- socioeconomics
- environmental justice
- cultural resources
- fuel cycle, decommissioning, and transportation

SMALL: Environmental effects are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource.

MODERATE: Environmental effects are sufficient to alter noticeably, but not to destabilize, important attributes of the resource.

LARGE: Environmental effects are clearly noticeable and are sufficient to destabilize important attributes of the resource.

The impacts are designated as SMALL, MODERATE, or LARGE. The incremental impacts related to the construction and operations activities requiring NRC authorization are described and characterized, as are the cumulative impacts resulting from the proposed action when the effects are added to, or interact with, other past, present, and reasonably foreseeable future effects on the same resources. A summary of the construction and operation impacts are outlined in Table ES-1. Table ES-2 summarizes the review team's assessment of cumulative impacts. The review team's detailed analysis which supports the impact assessment of the proposed new units can be found in Chapters 4, 5, and 7, respectively.

Table ES-1. Environmental Impact Levels of the Proposed Turkey Point Units 6 and 7

Resource Category	Preconstruction and Construction	Operation
Land Use	MODERATE (NRC authorized construction impact level is SMALL)	MODERATE
Water-Related		
Water Use – Surface Water	SMALL	SMALL
Water Use – Groundwater Use	SMALL	SMALL
Water Quality – Surface Water	SMALL	SMALL
Water Quality – Groundwater	SMALL	SMALL
Ecology		
Terrestrial Ecosystems	MODERATE (NRC authorized construction impact level is SMALL)	MODERATE
Aquatic Ecosystems	SMALL to MODERATE	SMALL
Socioeconomic		
Physical Impacts	SMALL (adverse) to MODERATE (beneficial)	SMALL (adverse) to MODERATE (beneficial)
Demography	SMALL	SMALL
Economic Impacts on the Community	SMALL	SMALL and beneficial
Infrastructure and Community Services	SMALL to MODERATE	SMALL to MODERATE
Environmental Justice	NONE[(a)]	NONE[(a)]
Historic and Cultural Resources	MODERATE (NRC authorized construction impact level is SMALL)	SMALL
Air Quality	SMALL	SMALL
Nonradiological Health	SMALL	SMALL
Nonradiological Waste	SMALL	SMALL
Radiological Health	SMALL	SMALL
Postulated Accidents	n/a	SMALL
Fuel Cycle, Transportation, and Decommissioning	n/a	SMALL

(a) A determination of "NONE" for Environmental Justice analyses does not mean there are no adverse impacts to minority or low-income populations from the proposed project. Instead, an indication of "NONE" means that while there are adverse impacts, those impacts do not affect minority or low-income populations in any disproportionate manner, relative to the general population.

Table ES-2. Cumulative Impacts on Environmental Resources, Including the Impacts of Proposed Turkey Point Units 6 and 7

Resource Category	Impact Level
Land Use	MODERATE
Water-Related	
Water Use – Surface Water	SMALL
Water Use – Groundwater Use	SMALL
Water Quality – Surface Water	MODERATE
Water Quality – Groundwater	SMALL
Ecology	
Terrestrial Ecosystems	MODERATE to LARGE
Aquatic Ecosystems	MODERATE
Socioeconomic	
Physical Impacts	SMALL adverse to MODERATE beneficial
Demography	SMALL
Economic Impacts on the Community	SMALL and beneficial
Infrastructure and Community Services	SMALL to MODERATE
Environmental Justice	NONE[(a)]
Historic and Cultural Resources	MODERATE
Air Quality	SMALL to MODERATE for criteria pollutants and MODERATE for GHGs
Nonradiological Health	SMALL
Nonradiological Waste	SMALL
Radiological Health	SMALL
Postulated Accidents	SMALL
Fuel Cycle, Transportation, and Decommissioning	SMALL

(a) A determination of "NONE" for Environmental Justice analyses does not mean there are no adverse impacts to minority or low-income populations from the proposed project. Instead, an indication of "NONE" means that while there are adverse impacts, those impacts do not affect minority or low-income populations in any disproportionate manner, relative to the general population.

Alternatives

The review team considered the environmental impacts associated with alternatives to issuing a COL for the two new nuclear units proposed by FPL for the Turkey Point site. These alternatives included a no-action alternative (i.e., not issuing the COL) and alternative energy sources, siting locations, and system designs.

The no-action alternative would result in the COL not being granted or the USACE not issuing its permit. Upon such a denial, construction and operation of new units at the Turkey Point site would not occur and the predicted environmental impacts would not take place. If no other facility would be built or strategy implemented to take its place, the benefits of the additional electrical capacity and electricity generation to be provided would also not occur and the need for baseload power would not be met.

Based on the NRC staff's review of energy alternatives, the NRC staff concluded that, from an environmental perspective, none of the viable alternatives is environmentally preferable to building a new baseload nuclear power generation plant at the Turkey Point site. The NRC staff eliminated several energy sources (e.g., wind, solar, geothermal, and biomass) from full

consideration because they are not currently capable of meeting the need of this project. None of the viable baseload alternatives (natural gas, coal, or a combination of alternatives) was environmentally preferable to the proposed Turkey Point units.

After comparing the cumulative effects of a new nuclear power plant at the proposed site against those at the alternative sites, the NRC staff concluded that none of the alternative sites would be environmentally preferable to the proposed site for building and operating a new nuclear power plant (Table ES-3). The four alternatives sites selected were as follows (Figure ES-2):

- Glades
- Martin
- Okeechobee 2
- St. Lucie.

Table ES-3. Comparison of Cumulative Impacts at the Turkey Point and Alternative Sites

Resource Category	Turkey Point Site[a]	Glades[b]	Martin[b]	Okeechobee 2[b]	St. Lucie[b]
Land Use	MODERATE	MODERATE	MODERATE	MODERATE	MODERATE
Water-Related					
Surface-water use	SMALL	MODERATE	MODERATE	MODERATE	SMALL
Groundwater use	SMALL	SMALL	SMALL	SMALL	SMALL
Surface-water quality	MODERATE	MODERATE	MODERATE	MODERATE	MODERATE
Groundwater quality	SMALL	SMALL	SMALL	SMALL	SMALL
Ecology					
Terrestrial and wetland ecosystems	MODERATE to LARGE	MODERATE	MODERATE	MODERATE	MODERATE
Aquatic ecosystems	MODERATE	MODERATE	MODERATE	MODERATE	SMALL to MODERATE
Socioeconomics					
Physical impacts	SMALL adverse except for MODERATE beneficial impacts on road quality	MODERATE adverse to SMALL beneficial impacts on road quality	MODERATE adverse to MODERATE beneficial impacts on road quality	MODERATE adverse to SMALL beneficial impacts on road quality	LARGE adverse to MODERATE beneficial impacts on road quality
Demography	SMALL	SMALL	SMALL	SMALL	SMALL, except for LARGE residential displacement impacts
Economic impacts on the community	SMALL and beneficial	SMALL and beneficial, except for LARGE and beneficial property tax revenues for Glades County and School District	SMALL and beneficial, except for MODERATE and beneficial property tax revenues for Martin County and School District	SMALL and beneficial, except for LARGE and beneficial property tax revenues for Okeechobee County and School District	SMALL and beneficial

Table ES-3. (contd)

Resource Category	Turkey Point Site[a]	Glades[b]	Martin[b]	Okeechobee 2[b]	St. Lucie[b]
Infrastructure and community services	SMALL except for MODERATE adverse impacts on traffic	SMALL except for MODERATE adverse impacts on traffic	SMALL except for MODERATE adverse impacts on traffic	SMALL except for MODERATE adverse impacts on traffic	SMALL except for MODERATE adverse impacts on traffic
Environmental Justice	None[c]	None[c]	None[c]	None[c]	None[c]
Historic and Cultural Resources	MODERATE	MODERATE	SMALL	MODERATE	SMALL
Air Quality					
Criteria pollutants	SMALL to MODERATE	SMALL	SMALL to MODERATE	SMALL to MODERATE	SMALL to MODERATE
Greenhouse gas emissions	MODERATE	MODERATE	MODERATE	MODERATE	MODERATE
Nonradiological Health	SMALL	SMALL	SMALL	SMALL	SMALL
Radiological Health	SMALL	SMALL	SMALL	SMALL	SMALL
Postulated Accidents	SMALL	SMALL	SMALL	SMALL	SMALL

(a) Cumulative impact determinations taken from EIS Table 7-3.
(b) Cumulative impact determinations taken from EIS Table 9-28.
(c) A determination of "NONE" for Environmental Justice analyses does not mean there are no adverse impacts on minority or low-income populations from the proposed project. Instead, an indication of "NONE" means that while there are adverse impacts, those impacts do not affect minority or low-income populations in any disproportionate manner, relative to the general population.

Table ES-3 provides a summary of the cumulative impacts for the proposed and alternative sites. The NRC staff concluded that all of the sites were generally comparable, and it would be difficult to state that one site is preferable to another from an environmental perspective. In such a case, the proposed site prevails because none of the alternatives is environmentally preferable to the proposed site.

Table ES-4 provides a summary of the EIS-derived impacts for a new nuclear power plant in comparison with the energy alternatives. The NRC staff concluded that none of the viable energy alternatives is preferable to construction of a new baseload nuclear power-generating plant located within FPL's region of interest.

The NRC staff considered various alternative systems designs, including seven alternative heat-dissipation systems and multiple alternative intake, discharge, and water-supply systems. The review team identified no alternatives that were environmentally preferable to the proposed Turkey Point Units 6 and 7 systems design.

Figure ES-2. Location of Sites Considered as Alternatives to the Turkey Point Site

Table ES-4. Summary of Environmental Impacts[(a)] of Construction and Operation of New Nuclear, Coal-Fired, and Natural-Gas–Fired Generating Units and a Combination of Alternatives

Impact Category	Nuclear	Coal[(b)]	Natural Gas[(b)]	Combination of Alternatives[(b)]
Land Use	MODERATE	MODERATE	MODERATE	MODERATE
Air Quality	SMALL	MODERATE	SMALL to MODERATE	SMALL to MODERATE
Water Use and Quality	SMALL	SMALL	SMALL	SMALL
Ecology	MODERATE	MODERATE	MODERATE	MODERATE
Waste Management	SMALL	MODERATE	SMALL	SMALL
Socioeconomics	MODERATE Beneficial to MODERATE Adverse	MODERATE Beneficial to MODERATE Adverse	MODERATE Beneficial to SMALL Adverse	MODERATE Beneficial to MODERATE Adverse
Human Health	SMALL	SMALL	SMALL	SMALL
Historic and Cultural Resources	MODERATE	MODERATE	MODERATE	MODERATE
Environmental Justice	NONE[(b)]	NONE[(b)]	NONE[(b)]	NONE[(b)]

(a) Impact levels for all alternatives are for construction and operation but do not reflect cumulative impacts. Thus, the nuclear impacts identified here may differ from those used to compare the proposed site to the alternative sites, which reflect cumulative impacts.
(b) Impacts taken from EIS Table 9-4. These conclusions for energy alternatives should be compared to NRC-authorized activities reflected in Chapters 4, 5, and Sections 6.1, and 6.2.
(c) A determination of "NONE" for Environmental Justice analyses does not mean there are no adverse impacts to minority or low-income populations from the proposed project. Instead, an indication of "NONE" means that while there are adverse impacts, those impacts do not affect minority or low-income populations in any disproportionate manner, relative to the general population.

Benefits and Costs

The NRC staff compiled and compared the pertinent analytical conclusions reached in the EIS. It gathered all of the expected impacts from building and operating proposed Turkey Point Units 6 and 7 and aggregated them into two final categories: (1) expected environmental costs and (2) expected benefits to be derived from approval of the proposed action. Although the analysis in Section 10.6 is conceptually similar to a purely economic benefit-cost analysis, which determines the net present dollar value of a given project, the purpose of the section is to identify potential societal benefits of the proposed activities and compare them to the potential internal (i.e., private) and external (i.e., societal) costs of the proposed activities. In general, the purpose is to inform the COL process by gathering and reviewing information that demonstrates the likelihood that the benefits of the proposed activities outweigh the aggregate costs.

On the basis of the assessments in this EIS, the building and operation of proposed Turkey Point Units 6 and 7, with mitigation measures identified by the review team, would accrue benefits that most likely would outweigh the economic, environmental, and social costs. For the NRC-proposed action (i.e., NRC-authorized construction and operation), the accrued benefits would also outweigh the costs of preconstruction, construction, and operation of proposed Turkey Point Units 6 and 7.

Public Involvement

A 60-day scoping period was held from June 15, 2010, to August 16, 2010. On July 15, 2010, the NRC held two public scoping meetings in Homestead, Florida. The review team received many oral comments during the public meetings and 32 e-mails and 10 letters throughout the rest of the scoping period on numerous topics including energy alternatives, terrestrial ecology, ground and surface water, and socioeconomics. The review team's response to the in-scope public comments can be found in Appendix D. The Scoping Summary Report (Agencywide Documents Access and Management System (ADAMS) Accession No. ML103130609) contains all of the comments, even those considered out-of-scope (e.g., security, safety issues).

During the initial 75-day comment period on the draft EIS, which began on March 6, 2015, the review team held public meetings in Miami, Florida, on April 22, 2015, and in Homestead, Florida, on April 23, 2015. During the course of the comment period, the NRC received requests from members of the public, a Tribal government, and Federal agencies to extend the comment period. In response to these requests, the NRC reopened the comment period on the draft EIS on May 28, 2015, until July 17, 2015, allowing additional time for public comments. In total, approximately 68 people provided oral comments at the public meetings held in April, and the NRC received approximately 11,300 pieces of correspondence during the original and reopened comment period.

Recommendation

The NRC's recommendation to the Commission related to the environmental aspects of the proposed action is that the COL should be issued.

This recommendation is based on the following:

- the application, including the ER, submitted by FPL
- consultation with Federal, State, Tribes, and local agencies
- site audits and alternative sites audits
- consideration of public comments received during the environmental review
- the review team's independent review and assessment summarized in this EIS.

The NRC's determination is independent of the USACE's determination of whether to issue, deny, or issue with modifications the DA permit application for the Turkey Point Units 6 and 7. The USACE will conclude its Clean Water Act Section 404(b)(1) Guidelines and public interest analyses in its Record of Decision.

ABBREVIATIONS/ACRONYMS

AADT	annual average daily traffic
ac	acre(s)
ACC	averted cleanup and decontamination costs
ac-ft	acre (foot) feet
ACHP	Advisory Council on Historic Preservation
ACS	American Community Survey
AD	Anno Domini
ADAMS	Agencywide Documents Access and Management System
AERMOD	American Meteorological Society/U.S. Environmental Protection Agency (AMS/EPA) Regulatory Model
AICUZ	Air Installation Compatible Use Zone
ALARA	as low as reasonably achievable
a.m.	ante meridian
AO	Administrative Order
AP-42	EPA's Compilation of Air Pollutant Emission Factors document
APE	Area of Potential Effect
APPZ	Avon Park Permeable (or Producing) Zone
AQCR	Air Quality Control Region
ARNI	Aquatic Resources of National Importance
ARRA	American Recovery and Reinvestment Act of 2009
ASE	advanced safety evaluation
ASR	aquifer storage and recovery (system)
ATC	Atlantic Coastal Ridge
BA	Biological Assessment
BACT	Best Available Control Technologies
BBCW	Biscayne Bay Coastal Wetlands
BC	Before Christ
BEBR	University of Florida's Bureau of Economic and Business Research
BEA	U.S. Bureau of Economic Analysis
BEIR VII	Biological Effects of Ionizing Radiation VII
bgs	below ground surface
BISC	Biscayne Bay
BLS	U.S. Bureau of Labor Statistics
BMP	Best Management Practice
Btu	British thermal unit
°C	degree(s) Celsius
μCi	microcurie(s)

μCi/mL	microcuries per milliliter
CA	Consent Agreement
CAA	Clean Air Act
CAIR	Clean Air Interstate Rule
CCD	Colony Collapse Disorder
CCR	coal combustion residuals
CCS	cooling-canal system (also known as IWF)
CDF	core damage frequency
CDMP	Comprehensive Development Master Plan
CDNFRM	cost for decontamination of non-farmland
CEC	chemical/contaminant of emerging concern
CEQ	Council on Environmental Quality
CERP	Comprehensive Everglades Restoration Program (also Project, Plan)
CFR	*Code of Federal Regulations*
cfs	cubic foot/feet per second
cm	centimeter(s)
cm^2	square centimeter(s)
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
COL	combined construction permit and operating license
CPI	Consumer Price Index
CPUE	catch per unit effort
CSAPR	Cross-State Air Pollution Rule
CTEMISS	cooling-tower emissions processor
CWA	Clean Water Act (aka Federal Water Pollution Control Act)
CWS	circulating-water system
CZMP	Coastal Zone Management Plan
d	day(s)
D	Directional Distribution Factor
DA	Department of the Army
dB	decibel(s)
dBA	decibel(s) on the A-weighted scale
DBA	design basis accident
DCD	Design Control Document
DEET	*N*,*N*-Diethyl-*meta*-toluamide
DEIS	draft environmental impact statement
DERM	Miami-Dade County Department of Environmental Resources Management
DHS	Department of Homeland Security

DNL	day-night average sound level
DOE	U.S. Department of Energy
DOI	U.S. Department of Interior
DOT	U.S. Department of Transportation
DPS	distinct population segment
DSM	demand-side management
DZMW	dual-zone monitoring well
EAB	exclusion area boundary
EAI	Ecological Associates, Inc.
EC10	effective concentration required to induce a 10% effect
EC50	effective concentration required to induce a 50% effect
ECOTOX	EPA Ecotoxicology
EDR	Florida Legislature's Office of Economic and Demographic Research
EEEA	East Everglades Expansion Area
EEL	Environmentally Endangered Lands (Program)
EFH	essential fish habitat
EIA	Energy Information Administration
EIS	environmental impact statement
EJ	environmental justice
ELF	extremely low frequency
ELF-EMF	extremely low frequency-electromagnetic field
EMB	Everglades Mitigation Bank
EMF	electromagnetic field
ENP	Everglades National Park
EPA	U.S. Environmental Protection Agency
EPOC	emerging pollutant of concern
EPRI	Electric Power Research Institute
ER	Environmental Report
ESA	Endangered Species Act of 1973, as amended
ESOC	emerging substance of concern
ESRP	Environmental Standard Review Plan (NUREG-1555, Supplement 1, Operating License Renewal)
EW	exploratory well
°F	degree(s) Fahrenheit
FAA	Federal Aviation Administration
FAC	Florida Administrative Code or Fla. Admin. Code
FDEP	Florida Department of Environmental Protection
FDHR	Florida Division of Historic Resources
FDOH	Florida Department of Health

FDOT	Florida Department of Transportation
FEC	Florida East Coast (Railway)
FEFP	Florida Education Finance Program
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FFWCC	Florida Fish and Wildlife Conservation Commission
FIRM	Flood Insurance Rate Map
FKNMS	Florida Keys National Marine Sanctuary
FLUCFCS	Florida Land Use, Cover, and Forms Classification System
FLUM	Future Land Use Map
FMNH	Florida Museum of Natural History
FMP	fishery management plan
FMSF	Florida Master Site File (form)
FNAI	Florida Natural Areas Inventory
FONSI	Findings of No Significant Impact
FPL	Florida Power & Light Company
fps	foot (feet) per second
FPSC	Florida Public Service Commission
FR	*Federal Register*
FRCC	Florida Reliability Coordinating Council
FSAR	Final Safety Analysis Report
FSER	Final Safety Evaluation Report
ft	foot/feet
ft^2	square foot/feet
ft/d	foot (feet) per day
ft^2/d	square foot (feet) per day
ft^3	cubic foot (feet)
ft^3/d	cubic foot (feet) per day
ft^3/yr	cubic foot (feet) per year
FTE	full-time equivalent
FWPCA	Federal Water Pollution Control Act (also known as the Clean Water Act of 1977)
FWS	U.S. Fish and Wildlife Service
FY	fiscal year
µg	microgram(s)
µg/L	microgram(s) per liter
µGy	microgray(s)
g	gram(s) or gravity of Earth (g-force)
gal	gallon(s)
gal/yr	gallon(s) per year

GC	gas centrifuge
g/cm^3	gram(s) per cubic centimeter
GCRP	U.S. Global Change Research Program
GEIS	Generic Environmental Impact Statement (for License Renewal of Nuclear Plants, NUREG-1437)
GHG	greenhouse gas
GIS	geographic information system
gpd	gallon per day
gpm	gallon per minute
gpm/ft	gallon(s) per minute per foot
g/s	gram(s) per second
GU	Interim District (zone)
GW	gigawatt(s)
GWh	gigawatt hour(s)
ha	hectare(s)
HAP	hazardous air pollutant
HAPC	habitat area of particular concern
HBB	health-based benchmark
HDR	HDR Engineering, Inc.
HEC-RAS	Hydrologic Engineering Centers River Analysis System
hr	hour
HUD	U.S. Department of Housing and Urban Development
Hz	hertz
I	Interstate
IAEA	International Atomic Energy Agency
ICRP	International Commission on Radiological Protection
ID	identification
IGCC	integrated gasification combined-cycle
in.	inch(es)
IRWST	in-containment refueling water storage tank
ISFSI	independent spent fuel storage installation
IUCN	World Conservation Union
IWF	industrial wastewater facility (also known as CCS)
K	Standard Peak Hour Factor
kg	kilogram(s)
kg/d	kilogram(s) per day
kg/L	kilogram(s) per liter
kg/yr	kilogram(s) per year

kg/ha/mo	kilogram(s)/hectare/month
kHz	kilohertz
km	kilometer(s)
km^2	square kilometer(s)
km/hr	kilometer(s) per hour
kt	knot(s)
kV	kilovolt(s)
kV/m	kilovolt(s) per meter
kW	kilowatt(s)
kWh	kilowatt-hour(s)
L	liter(s)
lb	pound(s)
lb/yr	pound(s) per year
L_{dn}	day-night average sound level
LEDPA	least environmentally damaging practicable alternative
L_{eq}	noise level equivalent
LFA	Lower Floridan Aquifer
LLC	Limited Liability Company
LLW	low-level waste
LOEC	lowest-observed effect concentration
LOS	level of service
LPZ	low-population zone
LST	local standard time
LWA	Limited Work Authorization
LWR	light water reactor
µmhos/cm	micromhos per centimeter
m	meter(s)
m/s	meter(s) per second
m^2	square meter(s)
m^3	cubic meter(s)
m^3/d	cubic meters per day
m^3/s	cubic meter(s) per second
mA	milliampere(s)
MACCS	MELCOR Accident Consequence Code System
MCU	Middle Confining Unit
MDC	Miami-Dade County
M-DCPS	Miami-Dade County Public School District
MDWASD	Miami-Dade Water and Sewer Department
MEI	maximally exposed individual

mg	milligram(s)
mG	milliGauss
Mgd	million gallon(s) per day
Mgd/yr	million gallon(s) per day per year
Mgm	million gallons per month
Mg/L	milligram(s) per liter
Mg/m^3	milligram(s) per cubic meter
mg N/L	milligrams of nitrate per liter
mg P/L	milligrams of phosphate per liter
mGy	milligray(s)
mGy/d	milligray(s) per day
MFCMA	Magnuson–Stevens Fishery Conservation and Management Act (or Magnuson–Stevens Act)
MHz	megahertz
mi	mile(s)
mi^2	square mile(s)
min	minute(s)
MIT	Massachusetts Institute of Technology
mL	milliliter(s)
MMBtu	one million British thermal units
MMBtu/hr	one million British thermal units per hour
MMBtu/yr	one million British thermal units per year
mo	month(s)
MOU	Memorandum of Understanding
mph	mile(s) per hour
mrad	millirad
mrem	millirem
msl or MSL	mean sea level
mSv	millisievert(s)
MSW	municipal solid waste
MT	metric ton(nes)
MTU	metric ton uranium
MW	megawatt(s)
MWd/MTU	megawatt-days per metric ton of uranium
MW(e)	megawatt(s) electric
MW(t)	megawatt(s) thermal
MWh	megawatt hour(s)
MWh/yr	megawatt hour(s) per year
N	north or nitrogen
NA	not applicable

NAAQS	National Ambient Air Quality Standard
NAD83	North American Datum of 1983
NARUC	National Association of Regulatory Utility Commissioners
NASCAR	National Association for Stock Car Auto Racing
NAVD88	North American Vertical Datum of 1988
NCI	National Cancer Institute
NCRP	National Council on Radiation Protection and Measurements
NEPA	National Environmental Policy Act of 1969, as amended
NERC	North American Electric Reliability Corporation
NESC	National Electrical Safety Code
NFC	Natural Forest Community
NGCC	natural-gas combined-cycle
NGVD	National Geodetic Vertical Datum
NHPA	National Historic Preservation Act
NIEHS	National Institute of Environmental Health Sciences
NMFS	National Marine Fisheries Service
NNC	Numerical Nutrient Criteria
NO_2	nitrogen dioxide
NO_3+NO_2	nitrate+nitrite
NO_x	nitrogen oxides
NOAA	National Oceanic and Atmospheric Administration
NOEC	no-observed effect concentration
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRC	U.S. Nuclear Regulatory Commission
NRHP	National Register of Historic Places
NSR	new source review
NUREG	U.S. Nuclear Regulatory Commission technical document
NW	northwest
NWS	National Weather Service
O_2	oxygen
O_3	ozone
ODCM	Offsite Dose Calculation Manual
OFW	Outstanding Florida Water
OIG	Office of the Inspector General
ORV	off-road vehicle
OSHA	Occupational Safety and Health Administration
P	phosphorus
PAH	polycyclic aromatic hydrocarbon

PC	personal computer
PCB	polychlorinated biphenyl
pCi/L	picocurie(s) per Liter
pH	measure of acidity or basicity in solution
PHU	panther habitat units
PHU	panther habitat unit
PFA	Panther Focus Area
P/L	phosphorus per liter
PIR	Public Interest Review or Project Implementation Report
PIRF	Public Interest Review Factor
PK-12	preschool through 12th grade
p.m.	post meridian
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter of 10 microns or less
$PM_{2.5}$	particulate matter with an aerodynamic diameter of 2.5 microns or less
PPSA	Power Plant Siting Act
ppm	part(s) per million
ppt	parts per thousand
PRA	probabilistic risk assessment
PSA	probabilistic safety assessment
PSD	Prevention of Significant Deterioration (Permit)
psu	practical salinity unit
PWR	pressurized water reactor
rad	radiation absorbed dose
RAI	Request for Additional Information
RCRA	Resource Conservation and Recovery Act of 1976, as amended
RCW	radial collector well
rem	roentgen equivalent man
REMP	radiological environmental monitoring program
RfC	reference concentration
RFI	Request for Information
RHA	Rivers and Harbors Act of 1899
RIMS II	Regional Input-Output Modeling System
RMS	root mean square
Rn-222	radon-222
ROD	Record of Decision
ROI	region of interest
RPHP	Radiation Public Health Project
RRY	reference reactor year
RSICC	(Oak Ridge) Radiation Safety Information Computational Center

RV	recreational vehicle
RWTF	reclaimed water-treatment facility
Ryr	reactor year
s or sec	second(s)
SAFMC	South Atlantic Fisheries Management Council
SAMA	severe accident mitigation alternative
SAMDA	severe accident mitigation design alternative
SAV	submerged aquatic vegetation
SBO	Station Blackout
SCA	Site Certification Application
scf	standard cubic feet
SCR	selective catalytic reduction
SDWWTP	South District Wastewater Treatment Plant
sec	second(s)
SECA	State Energy Conversion Alliance
SER	Safety Evaluation Report
SFRPC	South Florida Regional Planning Council
SFWMD	South Florida Water Management District
SGWEA	Southern Glades Wildlife Environmental Area
SHA	seismic hazard analysis
SHPO	State Historic Preservation Office (or Officer)
s/m^3	seconds per cubic meter
SO_2	sulfur dioxide
SO_x	oxides of sulfur
SOR	Save Our Rivers (Program)
SPCC	Spill Prevention, Control, and Countermeasure (Plan)
SR	State Route
SRP	Standard Review Plan
SSC	Species of Concern
SU	Standard Unit(s)
Sv	sievert(s)
SW	southwest
SWPPP	stormwater pollution prevention plan
SWS	service-water system
T	ton(s) or tonne(s)
T/B	Tug/Barge
TB_q	terrabequerel
TCP	traditional cultural property
T&E	threatened and endangered

TDS	total dissolved solids
TEDE	total effective dose equivalent
THPO	Tribal Historic Preservation Officer
TIMDEC	decontamination time
TKN	total Kjeldahl nitrogen
TLD	thermoluminescent dosimeter
TLF	Treasured Lands Foundation
TN	total nitrogen
TOC	total organic carbon
TP	total phosphorus
TRC	total reportable cases
TVA	Tennessee Valley Authority
UDB	urban development boundary
UF_6	uranium hexafluoride
UIC	underground injection control
UMAM	Uniform Mitigation Assessment Method
UMTRI	University of Michigan Transportation Research Institute
UNESCO	United National Educational, Scientific and Cultural Organization
UO_2	uranium dioxide
US	U.S. (State Highway)
U.S.	United States
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USCB	U.S. Census Bureau
USCG	U.S. Coast Guard
USDA	U.S. Department of Agriculture
USDW	underground source of drinking water
USGS	U.S. Geological Survey
VOC	volatile organic compound
W	west
W.A.T.E.R.	Wetland Assessment Technique for Environmental Review
WCA	water conservation area
Westinghouse	Westinghouse Electric Company, LLC
WHO	World Health Organization
wk	week(s)
WOTUS	waters of the United States
WRDA	Water Resources Development Act
WTP	water treatment plant
WWTP	wastewater treatment plant

χ/Q	atmospheric dispersion factor(s); annual average normalized air concentration value(s)
yd^3	cubic yards
yr	year(s)

APPENDIX A

CONTRIBUTORS TO THE ENVIRONMENTAL IMPACT STATEMENT

APPENDIX A

CONTRIBUTORS TO THE ENVIRONMENTAL IMPACT STATEMENT

The overall responsibility for the preparation of this environmental impact statement was assigned to the Office of New Reactors, U.S. Nuclear Regulatory Commission (NRC). The statement was prepared by members of the Offices of New Reactors with assistance from other NRC organizations, the U.S. Army Corps of Engineers, the National Park Service - Biscayne Bay and Everglades National Park, Pacific Northwest National Laboratory, and Information Systems Laboratories.

Name	Education/Expertise	Contribution
Nuclear Regulatory Commission		
Alicia Williamson	B.S. Biology and Chemistry; M.S. Environmental Science; 12 years relevant experience	Environmental Project Manager
Andrew Kugler	B.S., Mechanical Engineering; M.S. Technical Management; 14 years relevant experience	Alternatives, Environmental Project Manager
Tomeka Terry	M.S. Civil Engineering; 12 years relevant experience	Assistant Project Manager
Stacey Imboden	B.S. Meteorology; M.S. Environmental Engineering and Science; 13 years relevant experience	Meteorology , Air Quality, Climate Change
Kevin Quinlan	B.S. Meteorology; M.S. Atmospheric Science; 6 years relevant experience	Meteorology, Air Quality
Mohammad Haque	M.S. Civil Engineering; 35 years relevant experience	Surface Water Hydrology
Daniel Barnhurst	B.S. Environmental Geology; M.S. Geology 11 years relevant experience	Groundwater Hydrology, Geology
Michael Masnik	B.S. Conservation; M.S. and Ph.D. Zoology, 42 years relevant experience	Aquatic Ecology; Essential Fish Habitat
Robert Schaaf	B.S. Mechanical Engineering; 24 years relevant experience	Fuel Cycle
Peyton Doub	B.S. Plant Sciences; M.S. Plant Physiology; Professional Wetland Scientist; 27 years relevant experience	Terrestrial Ecology, Land Use, Transmission Lines
Daniel Mussatti	B.A. Economics; M.S. Natural Resource and Environmental Economics; 24 years relevant experience	Socioeconomics, Environmental Justice, Benefit-Cost, Need for Power
Jennifer Davis	B.A. Historic Preservation and Classical Civilization; 14 years relevant NEPA and NHPA experience	Historic and Cultural Resources

Name	Education/Expertise	Contribution
Jack Cushing	B.S. Marine Engineering; 30 years relevant nuclear experience	Historic and Cultural Resources, Nonradiological Health and Waste
Donald Palmrose	M.S. and Ph.D. Nuclear Engineering; 30 years relevant experience	Radioactive Waste Management, Health Physics, Decommissioning, Fuel Cycle, Postulated Accidents, Transportation
Malcolm Patterson	B.S. Systems Engineering; 39 years relevant experience	Severe Accidents
Seshagiri Tammara	M.S. Chemical and Environmental Engineering; 40 years relevant experience	Demography, Transportation, Postulated Accidents
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Name	Education/Expertise	Contribution
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Pacific Northwest National Laboratory[(a)]		
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Carmen Arimescu	B.S. and M.S. Computer Science; 30 years relevant experience	Comment Database
Terri Miley	B.S. and M.S. Mathematics; 27 years relevant experience	Comment Database
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Jeffrey Ward	B.A. Zoology; M.S., Environmental Engineering; 25 years relevant experience	Aquatic Ecology
Ann Miracle	B.A Biology, M.S. Population Genetics, Ph.D. Molecular Immunology; 17 years relevant experience.	Aquatic Ecology
Corey Duberstein	B.S. Wildlife; M.S. Natural Resource Science; 20 years relevant experience	Terrestrial Ecology
Lara Aston	B.S. and M.S. Environmental Science; 15 years relevant experience	Nonradiological Health; Terrestrial Ecology
Michelle Niemeyer	B.S. and M.S. Agricultural Economics; 8 years relevant experience	Need for Power, Benefit Cost
Paul Thorne	B.S. Chemistry/Math; M.S. Hydrology; 34 years relevant experience	Groundwater Use, Hydrology
Steve Breithaupt	B.S. Aquatic Biology; M.S. Environmental Science; Ph.D., Water Resource Engineering; 34 years relevant experience	Surface Water Use, Hydrology
Mart Oostrom	Ph.D. Soil Physics and Engineering; 25 years relevant experience	Staff Scientist
Lance Vail	B.S. Environmental Systems Engineering; M.S. Civil Engineering; 35 years relevant experience	Surface Water Use, Hydrology
Nancy Kohn	B.S. Freshwater Studies; 6 years relevant experience	Site Layout and Plant Description
Philip Daling	B.S. Physical Metallurgy; 33 years relevant experience	Transportation
Susan Loper	B.S. Biology; 13 years relevant experience	Geographic Information Systems
Susan Ennor	B.A. Journalism; 35 years relevant experience	Technical Editing and Text Processing

Name	Education/Expertise	Contribution
Cary Counts	B.S. Ceramic Engineering; M.S. Environmental Systems Engineering; 42 years relevant experience	Technical Editing and Text Processing
Mike Parker	B.A. English; 16 years relevant experience	Technical Editing and Text Processing
Heather Culley	B.S. Biology and Philosophy; M.A. Medical History and Ethics; 8 years relevant experience	Technical Editing and Text Processing
Christine Ross	A.A. Microcomputer Management/ Multimedia Specialist; B.A., Social Sciences; 19 years relevant experience	References, EARRTH
Susan Gulley	B.A. English/Library Science; 15 years relevant experience	References
Joanne Duncan	B.A. Biology; 15 years relevant experience	Reference Coordinator
Information Systems Laboratories		
Ali Azarm, IESS Corp[(b)]	B.S. Electrical Engineering; Ph.D. Nuclear Engineering; 15 years relevant experience	Severe and Design Basis Accidents
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Ralph Grismala, ICF International[(b)]	M.S. Civil Engineering; 37 years relevant experience	Nonradioactive Waste, Fuel Cycle
Gregory Hofer, SC&A[(b)]	M.S. Physics; M.S. Nuclear Engineering; 33 years relevant experience	Health Physics, Radioactive Waste Management
Rose Gogliotti, SC&A[(b)]	B.S. Radiological Health; 6 years relevant experience	Health Physics
Abe Zeitoun, SC&A[(b)]	B.S. Chemistry and Zoology; M.S. Fisheries; Ph.D. Environmental Sciences; 40 years relevant experience	Radioactive Waste Management
Sally Zeff, ICF International[(b)]	M.A. Urban Planning; 30 years relevant experience	Land Use, Transmission Lines
Edward Carr, ICF International[(b)]	M.S. Atmospheric Science; 33 years relevant experience	Meteorology, Air Quality
Michael Bever, ICF International[(b)]	Ph.D. Anthropology; 20 years relevant experience	Historic and Cultural Resources
U.S. Geological Survey		
Gary Patterson		Hydrology

Pacific Northwest National Laboratory is operated by Battelle for the U.S. Department of Energy.
ICF International, Sandy Cohen & Associates (SC&A), and Innovative Engineering and Safety Solutions, LLC (IESS Corp) are subcontractors to Information Systems Laboratories (ISL).

APPENDIX B

ORGANIZATIONS CONTACTED

APPENDIX B

ORGANIZATIONS CONTACTED

The following Federal, State, regional, Tribal, and local organizations were contacted during the course of the U.S. Nuclear Regulatory Commission staff's independent review of potential environmental impacts from the construction and operation of two new nuclear units, Turkey Point Units 6 and 7, at the Turkey Point site in Miami-Dade County, Florida:

Organization Name, City, State

Advisory Council on Historic Preservation, Washington, D.C.

Archaeological and Historical Conservancy, Inc., Davie, Florida

Asian American Advisory Board

Assistant Director, Community Redevelopment Agency, City of Homestead, Florida

Centro Campesino, Florida City, Florida

City of Florida City, Florida City, Florida

City of Homestead, Homestead, Florida

City of Miami, Office of the City Attorney, Miami, Florida

City of South Miami, South Miami, Florida

Department of Health, Bureau of Radiation Control, Tallahassee, Florida

Director of Planning and Zoning, City of South Miami, Florida

Fish and Wildlife Services, South Florida Ecological Services Office, Vero Beach, Florida

Florida Department of Environmental Protection, Tallahassee, Florida

Florida Department of Environmental Protection, West Palm Beach, Florida

Florida International University, Miami, Florida

Florida Keys Aqueduct Authority, Key West, Florida

Florida State Historic Preservation Officer (SHPO), Tallahassee, Florida

Florida State House of Representatives, Tallahassee, Florida

Florida State Senate, Tallahassee, Florida

Florida Wildlife and Fisheries Conservation Commission, South Region Office, West Palm Beach, Florida

Historic Preservation Administrator, City of Coral Gables, Florida

Historic Preservation Officer, City of Miami, Florida

Homestead Housing Authority, Homestead, Florida

Miami-Dade County Community Action Agency, Miami, Florida

Miami-Dade County Department of Planning and Zoning, Miami, Florida

Miami-Dade County Department of Regulatory and Economic Resources, formerly DERM, Miami, Florida

Miami-Dade County Office of Historic and Archaeological Resources, Miami, Florida

Miami-Dade County Permitting, Environment, and Regulatory Affairs, Miami, Florida

Miami-Dade County Planning, Miami, Florida

Miami-Dade County Public Schools, Miami, Florida

Miami-Dade Office of Community Advocacy, Miami, Florida

Miami-Dade Water and Sewer Department, Miami, Florida

Miccosukee Tribe of Indians of Florida, Miami, Florida

Monroe County, Key West, Florida

Muscogee (Creek) Nation, Okmulgee, Oklahoma

NGO Sembrando Flores, Homestead, Florida

NMFS, Southeast Regional Office, Saint Petersburg, Florida

South Florida Water Management District, Hydrogeology Section, Water Supply, Palm Beach, Florida

Stephen P. Clark Center, Miami, Florida

Town of Cutler Bay, Cutler Bay, Florida

Tribal Historic Preservation Officer (THPO), Poarch Band of Creek Indians, Atmore, Alabama

Tribal Historic Preservation Officer (THPO), Seminole Nation of Oklahoma, Wewoka, Oklahoma

Tribal Historic Preservation Officer (THPO), Seminole Tribe of Florida, Clewiston, Florida

U.S. Department of Homeland Security, Federal Emergency Management Agency, Region IV, Atlanta, Georgia

U.S. Environmental Protection Agency, Region 4, Atlanta, Georgia

U.S. Geological Survey, Fort Lauderdale, Florida

U.S. House of Representatives, Washington, D.C.

U.S. Interior Fish and Wildlife Services, South Florida Ecological Services Office, Vero Beach, Florida

U.S. National Marine Fisheries Services, Southeast Regional Office, St. Petersburg, Florida

U.S. National Park Service, Biscayne National Park, Homestead, Florida

U.S. National Park Service, Everglades National Park, Homestead, Florida

U.S. Senate, Washington, D.C.

Village of Pinecrest, Pinecrest, Florida

APPENDIX C

NRC AND USACE ENVIRONMENTAL REVIEW CORRESPONDENCE

APPENDIX C

NRC AND USACE ENVIRONMENTAL REVIEW CORRESPONDENCE

This appendix contains a chronological list of correspondence between the U.S. Nuclear Regulatory Commission (NRC) or the U.S. Army Corps of Engineers (USACE) and Florida Power & Light Company (FPL). Other correspondence related to the environmental review of FPL's application for combined construction permits and operating licenses (COLs) and a USACE permit at the Turkey Point Nuclear site in Miami-Dade County, Florida, is also included.

All documents, with the exception of those containing proprietary information, are available electronically from the Public Electronic Reading Room found on the Internet at the following web address: www.nrc.gov/reading-rm.html. From this website, the public can gain access to the NRC's Agencywide Documents Access and Management System (ADAMS), which provides text and image files of NRC's public documents. The ADAMS accession number or *Federal Register* citation for each document is included within the parenthesis following the reference.

November 10, 2008	NRC trip report for readiness assessment (C-1) visit for a future combined license application at the Turkey Point site (ML082880307).
April 15, 2009	NRC trip report for readiness assessment (C-2/C-3) visit for a future combined license application at Turkey Point site (ML090850294).
May 15, 2009	NRC trip report for readiness assessment (C-2) visit for a future combined license application at Turkey Point site (ML091320137).
June 4, 2009	NRC trip report for pre-application visit with regulatory agencies related to a future combined license application at the Turkey Point site (ML091470726).
June 30, 2009	FPL letter submitting an application for a combined license for Units 6 and 7 at the Turkey Point site (ML091830589).
July 23, 2009	Letter from NRC to FPL acknowledging receipt of the COL application for Turkey Point Units 6 and 7 (ML091890130).
August 3, 2009	Federal Register notice of receipt and availability of application for a combined license for Turkey Point (ML092590051).
August 7, 2009	Letter from FPL to NRC providing meteorological information for the Turkey Point COL application (ML092250585).
September 4, 2009	Letter from NRC to FPL accepting for docketing the COL application for Turkey Point Units 6 and 7 (ML092380248).

September 16, 2009	Letter from the County of Monroe, Florida, requesting NRC to keep it informed of activities related to the NRC staff's review of the COL application for Turkey Point Units 6 and 7 (ML092750383).
October 1, 2009	FPL letter to NRC providing schedule for response to NRC staff's requests for additional information (ML092810318).
October 7, 2009	Federal Register notice of acceptance for docketing of an application for a combined license for Turkey Point Units 6 and 7 (ML092860057).
November 10, 2009	FPL letter to NRC withdrawing the request for a limited work authorization (ML093170513).
November 25, 2009	Letter from NRC to Ms. Susan Grimsley, Assistant County Attorney, County of Monroe, Florida, Acknowledging Receipt of the Letter from County of Monroe Proposal (Accession No. ML092960671).
November 25, 2009	Letter from NRC to Mr. David S. Hobbie, Chief Regulatory Division, U.S. Army Corps of Engineers, NRC's Environmental Impact Statement for FPL Combined License Application for Turkey Point, units 6 and 7 (ML092610207).
December 10, 2009	Letter from Mr. Donald Kinard, Chief Regulatory Division, U.S. Army Corps of Engineers, agreeing to become a cooperating agency for the environmental impact statement for FPL combined license application for Turkey Point, Units 6 and 7 (ML093520690).
January 4, 2010	Letter from NRC to Ms. Zelda Ryles, Manager, South Dade Regional Library, Regarding Maintenance of Document at the South Dade Regional Library Related to Combined License Application for Turkey Point, Units 6 and 7 (ML092610278).
January 4, 2010	Letter from NRC to Ms. Pamela Hogue, Manager, Homestead Branch Library, Regarding Maintenance of Document at the Homestead Branch Library Related to Combined License Application for Turkey Point, Units 6 and 7 (ML092610521).
May 28, 2010	Letter from NRC to Mr. M. Nazar, FPL, Providing the Turkey Point Units 6 and 7 Nuclear Power Plants Combined License Application Review Schedule (ML101310404).
June 9, 2010	Letter from NRC to Mr. W. Maher, FPL, Notice of Intent to Prepare an Environmental Impact Statement and Conduct Scoping Related to a Combined License Application for Turkey Point, Units 6 and 7 (ML101580552).

June 14, 2010	Letter from NRC to Mr. M. Nazar, FPL, Florida Power & Light – Application for a Combined License for the Turkey Point Nuclear Power Plant Units 6 and 7; the Notice of Hearing, Opportunity to Petition for Leave to Intervene, and Associated Order (ML101400547).
June 18, 2010	Federal Register Notice, Florida Power & Light Company, Combined License Application for the Turkey Point Units 6 and 7, Notice of Hearing, Opportunity to Petition for Leave to Intervene and Associated Order Imposing Procedures for Access to Sensitive Unclassified Non-Safeguards Information and Safeguards Information for Contention Preparation (ML102370715).
June 18, 2010	Letter from NRC to Ms. N. Linehan, Florida Wildlife and Fisheries Conservation Commission, Request for Participation in the Scoping Process and List of State Listed Protected Species for the Environmental Review for the Turkey Point Units 6 and 7 Combined License Application Review (ML101610556).
June 23, 2010	Letter from NRC to Mr. R. Nelson, Advisory Council on Historic Preservation, Request for Participation in the Scoping Process for the Turkey Point Units 6 and 7 Combined License Application Review (ML101610537).
June 23, 2010	Letter from NRC to Mr. P. Souza, U.S. Fish and Wildlife Service, Notification and Request for Consultation and Participation in the Environmental Scoping Process and a List of Protected Species within the Area Under Evaluation for the Turkey Point Units 6 and 7 Combined License Application Review (ML101610560).
June 23, 2010	Letter from NRC to Dr. R. Crabtree, National Marine Fisheries Service, Notification and Request for Consultation and Participation in the Environmental Scoping Process and a List of Protected Species within the Area Under Evaluation for the Turkey Point Units 6 and 7 Combined License Application Review (ML101610565).
June 24, 2010	Letter from NRC to Those on the Attached List, Request for Participation in the Scoping Process for the Turkey Point Units 6 and 7 Combined License Application Review (ML101610568).
June 24, 2010	Letter from NRC to Mr. S. Terry, Miccosukee Tribe of Indians of Florida, Notification and Request for Consultation and Participation in the Scoping Process for the Environmental Review of the Turkey Point Units 6 and 7 Combined License Application (ML101690501).

June 24, 2010	Letter from NRC to Ms. J. Bear, Muscogee (Creek) Nation, Notification and Request for Consultation and Participation in the Scoping Process for the Environmental Review of the Turkey Point Units 6 and 7 Combined License Application (ML101690496).
June 24, 2010	Letter from NRC to Mr. R. Thrower, Poarch Band of Creek Indians, Notification and Request for Consultation and Participation in the Scoping Process for the Environmental Review of the Turkey Point Units 6 and 7 Combined License Application (ML101690503).
June 24, 2010	Letter from NRC to Mr. W. Steele, Seminole Tribe of Florida, Notification and Request for Consultation and Participation in the Scoping Process for the Environmental Review of the Turkey Point Units 6 and 7 Combined License Application (ML101690499).
June 24, 2010	Letter from NRC to Ms. N. Deere, Seminole Nation of Oklahoma, Notification and Request for Consultation and Participation in the Scoping Process for the Environmental Review of the Turkey Point Units 6 and 7 Combined License Application (ML101690497).
June 29, 2010	Letter from NRC to Ms. L. Kammerer, Florida Deputy State Historic Preservation Officer, Notification and Request for Consultation and Participation in the Environmental Scoping Process for the Environmental Review of the Turkey Point Units 6 and 7 Combined License Application (ML101690480).
June 29, 2010	Notice of Public Scoping Meeting for the Turkey Point Units 6 and 7 Combined License (ML101690484).
July 1, 2010	Letter from NRC to Mr. R. Carr, Archaeological and Historical Conservancy, Inc., Notification and Request for Consultation and Participation in the Scoping Process for the Environmental Review of the Turkey Point Units 6 and 7 Combined License Application (ML101690462).
July 1, 2010	Letter from NRC to Ms. K Kauffman, Miami-Dade Office of Historic & Archaeological Resources, Notification and Request for Consultation and Participation in the Scoping Process for the Environmental Review of the Turkey Point Units 6 and 7 Combined License Application (ML101690468).
July 1, 2010	Letter from NRC to Ms. E. Uguccioni, Historic Preservation Officer, City of Miami, Notification and Request for Consultation and Participation in the Scoping Process for the Environmental Review of the Turkey Point Units 6 and 7 Combined License Application (ML101690472).

July 1, 2010	Letter from NRC to Ms. S. Chin, Historic Preservation Administrator, City of Coral Gables, Notification and Request for Consultation and Participation in the Scoping Process for the Environmental Review of the Turkey Point Units 6 and 7 Combined License Application (ML101730494).
July 1, 2010	Letter from NRC to Mr. D. Wick, Assistant Director of Community Redevelopment Agency, City of Homestead, Notification and Request for Consultation and Participation in the Scoping Process for the Environmental Review of the Turkey Point Units 6 and 7 Combined License Application (ML101730511).
July 1, 2010	Letter from NRC to Mr. S. Youkilis, Director of Planning and Zoning, City of South Miami, Notification and Request for Consultation and Participation in the Scoping Process for the Environmental Review of the Turkey Point Units 6 and 7 Combined License Application (ML101730515).
July 1, 2010	Letter from NRC to Those on the Attached List, Invitation to a Government-to-Government Meeting for the Turkey Point Units 6 and 7 Combined License Application Environmental Review (ML101800575).
July 8, 2010	Letter from Ms. C. Hall, Advisory Council on Historic Preservation, to NRC, Regarding Florida Power and Light's Application for Two New Nuclear Power Plants, Turkey Point Site, Homestead, Florida (ML101900325).
July 28, 2010	Letter from Ms. L. Kammerer, Florida Division of Historical Resources, to NRC, Providing Scoping Comments Regarding Cultural Resources (ML102220345).
August 5, 2010	Letter from Mr. M. Croom, National Marine Fisheries Service, to NRC, Providing Scoping Comments and Information Supporting Consultation Under the Endangered Species Act and the Magnuson-Stevens Act (ML102320025).
August 12, 2010	Letter from Ms. K. Kauffman, Miami-Dade Office of Historic & Archaeological Resources, to NRC, Providing Scoping Comments and Accepting the NRC Invitation to Consult (ML102390102).
August 16, 2010	Letter from Ms. M. Poole, Florida Fish and Wildlife Conservation Commission, to NRC, Providing Scoping Comments and a List of Species (ML102280488).

August 30, 2010	Memorandum, Summary of July 22, 2010, Category 1 Public Teleconference with the Florida Power and Light Company to Discuss Environmental Information Needs for the Turkey Point Units 6 and 7 Combined License Application (ML102150618).
August 31, 2010	Memorandum, Summary of July 15, 2010, Public Meetings to Support the Review of the Turkey Point Units 6 and 7 Combined License Application (ML102080607).
August 31, 2010	Letter from NRC to Mr. W. Maher, FPL, Turkey Point Units 6 and 7 Combined License Application Online Reference Portal (ML102320391).
September 3, 2010	Letter from Mr. M. Nazar, FPL, to NRC, Submittal of Annual Update to the COL Application – Revision 1, and the Semiannual Update of the Departures Report (ML102570371).
September 14, 2010	Letter from Ms. A. Mullins, Seminole Tribe of Florida, to NRC, Assessment of Effects for the Proposed Construction of Two Additional Nuclear Reactors at Turkey Point, Miami-Dade County, Florida (ML102660296).
September 21, 2010	Memorandum, Summary of the Environmental Site Audit Related to the Review of the Combined License Application for Turkey Point Units 6 and 7 (ML101880784).
October 21, 2010	Memorandum, Summary of the Environmental Alternative Sites Audit Related to the Review of the Combined License Application for Turkey Point Units 6 and 7 (ML102660659).
November 1, 2010	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, NRC June 2010 Environmental Audit, Supplemental Information Request Response 1 (ML103080837).
November 1, 2010	Summary of September 29, 2010, Teleconference Between NRC and the Miami-Dade Water and Sewer Department Regarding Use of Treated Wastewater for Turkey point Units 6 and 7 (ML103490981).
November 5, 2010	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Combined License Application Online Reference Portal (ML103130133).
November 16, 2010	Memorandum, Summary of the November 2, 2010, Teleconference between NRC and EPA Regarding Emerging Pollutants of Concern in Cooling Water (ML110050170).
December 1, 2010	Memorandum, Scoping Summary Report Related to the Environmental Scoping Process for the Turkey Point Units 6 and 7 Combined License Application (ML103130609).

December 8, 2010	Summary of the October 20, 2010, Meeting between the Seminole Tribe of Florida, the U.S. Army Corps of Engineers, and the NRC to Discuss Issues Related to Cultural Resources (ML103420623).
December 15, 2010	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, NRC June 2010 Environmental Audit, Supplemental Information Request Response 2, Part 1 (ML103540248).
December 15, 2010	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, NRC June 2010 Environmental Audit, Supplemental Information Request Response 2, Part 2 (ML103560533).
December 21, 2010	Letter from Mr. M. Nazar, FPL, to NRC, Early Submittal of Annual Update to the COL Application – Revision 2, and the Semiannual Update of the Departures Report (ML103630059).
January 11, 2011	Memorandum, Summary of October 26, 2010, Teleconference with Dr. G. Rand, Florida International University, Regarding Reclaimed Water Quality and Toxicology Testing (ML110200187).
February 1, 2011	Email Forwarding U.S. Army Corps of Engineers Request for Additional Information Related to Site Selection (ML110330126).
February 28, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, NRC June 2010 Environmental Audit, Submittal of Groundwater Model Development and Analysis: Units 6 and 7 Dewatering and Radial Collector Well Simulations, Revision 1 (ML110610723).
March 1, 2011	Letter from NRC to Mr. M. Nazar, FPL, Environmental Request for Additional Information Letter 1102231 Related to ESRP Section 2.7, Cultural Resources, for the Combined License Application Review for Turkey Point Units 6 and 7 (ML110601020).
March 1, 2011	Letter from NRC to Mr. M. Nazar, FPL, Environmental Request for Additional Information Letter 1102232 Related to ESRP Section 9.3.1, Site Selection Process, for the Combined License Application Review for Turkey Point Units 6 and 7 (ML110601062).
March 1, 2011	Letter from NRC to Mr. M. Nazar, FPL, Environmental Request for Additional Information Letter 1102233 Related to ESRP Section 3.1, External Appearance and Plant Layout, for the Combined License Application Review for Turkey Point Units 6 and 7 (ML110601071).

March 7, 2011	Letter from NRC to Mr. M. Nazar, FPL, Environmental Request for Additional Information Letter 1103071 Related to ESRP Section 5.7, Meteorological and Air Quality Impacts, for the Combined License Application Review for Turkey Point Units 6 and 7 (ML110660019).
March 9, 2011	Letter from NRC to Mr. M. Nazar, FPL, Environmental Request for Additional Information Letter 1103091 Related to ESRP Section 5.3.4, Non-Radiological Health, for the Combined License Application Review for Turkey Point Units 6 and 7 (ML110680020).
March 9, 2011	Letter from NRC to Mr. M. Nazar, FPL, Environmental Request for Additional Information Letter 1103092 Related to ESRP Section 3.4.4, Nonradioactive Waste Systems, for the Combined License Application Review for Turkey Point Units 6 and 7 (ML110680022).
March 9, 2011	Letter from NRC to Mr. M. Nazar, FPL, Environmental Request for Additional Information Letter 1103093 Related to ESRP Section 2.2, Land Use, for the Combined License Application Review for Turkey Point Units 6 and 7 (ML110680053).
March 9, 2011	Letter from NRC to Mr. M. Nazar, FPL, Environmental Request for Additional Information Letter 1103094 Related to ESRP Section 9.3, Alternative Sites, for the Combined License Application Review for Turkey Point Units 6 and 7 (ML110680062).
March 10, 2011	Letter from NRC to Mr. M. Nazar, FPL, Environmental Request for Additional Information Letter 1103101 Related to ESRP Section 2.4.1, Terrestrial and Wetlands Ecology, for the Combined License Application Review for Turkey Point Units 6 and 7 (ML110690002).
March 10, 2011	Letter from NRC to Mr. M. Nazar, FPL, Environmental Request for Additional Information Letter 1103102 Related to ESRP Section 2.5, Socioeconomics, for the Combined License Application Review for Turkey Point Units 6 and 7 (ML110690003).
March 11, 2011	Letter from NRC to Mr. D. Vela, National park Service, Invitation to Become a Cooperating Agency for the U.S. Nuclear Regulatory Commission's Environmental Impact Statement for the Florida Power and Light Company Combined License Application for Turkey Point Units 6 and 7, Miami-Dade County, Florida (ML102030501).
March 14, 2011	Memorandum, Summary of February 24, 2011, Category 3 Public Meeting with the Florida Power and Light Company to Discuss the Revised Groundwater Model for the Turkey Point Units 6 and 7 Combined License Application (ML110620735).

March 14, 2011	Letter from NRC to Mr. M. Nazar FPL Environmental Request for Additional Information Letter 120316 Related to ESRP Section 9.3-US Army Corps of Engineers, For the Combined License Application Review for Turkey Point, Units 6 and 7 (ML12074A005).
March 17, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Request for Additional Information eRAI 5340, Revision 1, U.S. Army Corps of Engineers for Application Section 9.3 (ML110820044).
March 17, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, NRC June 2010 Environmental Audit, Submittal of Groundwater Flow Model (MODFLOW) Calculation Revision 4 Input/Output Files (ML110830787).
April 6, 2011	Letter from NRC to Mr. M. Nazar, FPL, Environmental Request for Additional Information Letter 1104071 Related to ESRP Section 9.3.1, Site Selection Process, for the Combined License Application Review for Turkey Point Units 6 and 7 (ML110960520).
April 6, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information Letter 1103094 (RAI 5563), Environmental Standard Review Plan Section 9.3, Alternative Sites (ML110980612).
April 12, 2011	Letter from NRC to Mr. M. Nazar, FPL, Environmental Request for Additional Information Letter 1104121 Related to ESRP Section 9.3, Alternative Sites, for the Combined License Application Review for Turkey Point Units 6 and 7 (ML111010357).
April 15, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information Letter 1102231 (RAI 5480), Environmental Standard Review Plan Section 2.7, Cultural Resources (ML111090274).
April 15, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information Letter 1102232 (RAI 5481), Environmental Standard Review Plan Section 9.3.1, Site Selection Process (ML111080761).

April 15, 2011 Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information Letter 1102233 (RAI 5482), Environmental Standard Review Plan Section 3.1, External Appearance and Plant Layout (ML11108A146).

April 20, 2011 Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information Letter 1103071 (RAI 5498), Environmental Standard Review Plan Section 5.7, Meteorological and Air Quality Impacts (ML111170331).

April 21, 2011 Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information Letter 1103092 (RAI 5595), Environmental Standard Review Plan Section 3.4.4, Non-Radioactive Waste Systems (ML11122A054).

April 22, 2011 Letter from Mr. D. Vela, National Park Service, Southeast Regional Office, to Mr. S. Flanders, NRC, Accepting the NRC Invitation to Become a Cooperating Agency on the Turkey Point, Units 6 and 7, Environmental Impact Statement (ML111160378).

April 25, 2011 Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information Letter 1103093 (RAI 5561), Environmental Standard Review Plan Section 2.2, Land Use (ML11116A160).

April 25, 2011 Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information Letter 1103091 (RAI 5594), Environmental Standard Review Plan Section 5.3.4, Non-Radiological Health (ML11116A161).

April 26, 2011 Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information Letter 1103102 (RAI 5570), Environmental Standard Review Plan Section 2.5, Socioeconomics (ML11118A177).

April 26, 2011 Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information Letter 1103101 (RAI 5562), Environmental Standard Review Plan Section 2.4.1, Terrestrial and Wetlands Ecology (ML111180713).

April 27, 2011	Letter from NRC to Mr. M. Nazar, FPL, Environmental Request for Additional Information Letter 1104271 Related to ESRP Section 1.5, Compliance and Consultations, for the Combined License Application Review for Turkey Point Units 6 and 7 (ML111170533).
May 4, 2011	Letter from NRC to Mr. M. Nazar, FPL, Environmental Request for Additional Information Letter 1105042 Related to ESRP Section 2.4.2, Aquatic Ecology, for the Combined License Application Review for Turkey Point Units 6 and 7 (ML111240011).
May 4, 2011	Letter from NRC to Mr. M. Nazar, FPL, Environmental Request for Additional Information Letter 1105043 Related to ESRP Section 4.3.2, Aquatic Impacts, for the Combined License Application Review for Turkey Point Units 6 and 7 (ML111240013).
May 4, 2011	Letter from NRC to Mr. M. Nazar, FPL, Environmental Request for Additional Information Letter 1105041 Related to ESRP Section 9.3, Alternative Sites, for the Combined License Application Review for Turkey Point Units 6 and 7 (ML111230733).
May 5, 2011	Letter from NRC to Mr. M. Nazar, FPL, Environmental Request for Additional Information Letter 1105051 Related to ESRP Section 8.4, Assessment of Need for Power, for the Combined License Application Review for Turkey Point Units 6 and 7 (ML111240406).
May 18, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Audit Data and Information Needs AQ-4, H-13, H-23, H-31, H-34, H-35, H-38, H-40, NR-6 (ML11143A090).
May 23, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, First (Partial) Response to NRC Environmental Request for Additional Information Letter 1104071 (RAI 5588), Environmental Standard Review Plan Section 9.3.1, Alternative Site Selection Process (ML11145A041).
May 27, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, First (Partial) Response to NRC Environmental Request for Additional Information Letter 1104121 (RAI 5589), Environmental Standard Review Plan Section 9.3.1, Alternative Site Selection Process (ML11151A198).
June 3, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information Letter 1104271 (RAI 5699), Environmental Standard Review Plan Section 1.5, Compliance and Consultations (ML11157A123).

June 10, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information Letter 1105041 (RAI 5708), Environmental Standard Review Plan Section 9.3, Alternative Sites (ML11165A034).
June 13, 2011	Email from NRC to Mr. W. Maher, FPL, Turkey Point Environmental – Final RAI EIS 9.4 (RAI No. 5770) – System Design Alternatives (ML11175A140).
June 14, 2011	Letter from NRC to Mr. M. Nazar, FPL, Environmental Request for Additional Information Letter 110614 Related to ESRP Section 3.2.2, Structures with a Major Environmental Interface, for the Combined License Application Review for Turkey Point Units 6 and 7 (ML111650769).
June 14, 2011	Letter from NRC to Mr. M. Nazar, FPL, Environmental Request for Additional Information Letter 110614 Related to ESRP Section 2.3, Water, for the Combined License Application Review for Turkey Point Units 6 and 7 (ML111650597).
June 14, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information Letter 1105042 (RAI 5704), Environmental Standard Review Plan Section 2.4.2, Aquatic Ecology (ML11168A043).
June 20, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information Letter 1105043 (RAI 5707), Environmental Standard Review Plan Section 4.3.2, Aquatic Impacts (ML11172A285).
June 20, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information Letter 1105051 (RAI 5565), Environmental Standard Review Plan Section 8.4, Assessment of Need for Power (ML11178A015).
July 7, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information Letter 1103101 (RAI 5562), Environmental Standard Review Plan Section 2.4.1, Terrestrial and Wetlands Ecology (ML11195A164).

July 7, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information Letter 1103093 (RAI 5561), Environmental Standard Review Plan Section 2.2, Land Use (ML11192A042).
July 11, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Revised Schedule for Response to NRC Environmental Request for Additional Information Letter 1104071 (RAI 5588), Environmental Standard Review Plan Section 9.3.1, Alternative Site Selection Process (ML11194A007).
July 27, 2011	Letter from NRC to Mr. M. Nazar, FPL, Environmental Request for Additional Information Letter 1107271 Related to ESRP Section 5.2, Water Related Impacts, for the Combined License Application Review for Turkey Point Units 6 and 7 (ML112081475).
July 28, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information Letter 2011001 (RAI 5770), Environmental Standard Review Plan Section 9.4, System Design Alternatives (ML11213A095).
July 29, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information Letter 110614 (RAI 5764), Environmental Standard Review Plan Section 3.2.2, Structures with a Major Environmental Interface (ML11214A031).
July 29, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information Letter 110614 (RAI 5763), Environmental Standard Review Plan Section 2.3, Water (ML11214A032).
August 8, 2011	Letter from Mr. P. Kruger, U.S. Army Corps of Engineers, to Ms. F. Braun, Florida Power & Light Company, Regarding an Alternative to the Western Transmission Line Corridor (ML112690006).
August 17, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Revised Schedule for Response to NRC Environmental Request for Additional Information Letter 1104121 (RAI 5589), Environmental Standard Review Plan Section 9.3, Alternative Sites (ML11231A239).

August 30, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information Letter 110614 (RAI 5763), Environmental Standard Review Plan Section 2.3, Water (ML11243A165).
September 1, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information Letter 1104071 (RAI 5588), Environmental Standard Review Plan Section 9.3.1, Alternative Site Selection Process (ML11250A130).
September 2, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Request for Additional Information RAI 5340 Revision 1 Standard Review Plan Section: EIS USACE – U.S. Army Corps of Engineers for Application Section: 9.3 (ML11250A052).
September 2, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information Letter 1103094 (RAI 5563), Environmental Standard Review Plan Section 9.3 - Alternative Sites (ML11251A209).
September 6, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information Letter 110614 (RAI 5763), Environmental Standard Review Plan Section 2.3, Water (ML11251A168).
September 12, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information Letter 1107271 (RAI 5767), Related to ESRP Section 5.2, Water Related Impacts (ML11257A133).
September 13, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Revised Schedule for Response to NRC Environmental Request for Additional Information Letter 1104121 (RAI 5589), Environmental Standard Review Plan Section 9.3, Alternative Sites (ML11258A158).
September 13, 2011	Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information Letter 110614 (RAI 5763), Environmental Standard Review Plan Section 2.3, Water (ML11258A156).

September 13, 2011 Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information Letter 1104071 (RAI 5588), Environmental Standard Review Plan Section 9.3.1, Alternative Site Selection Process (ML11258A155).

September 30, 2011 Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information Letter 1104121 (RAI 5589), Environmental Standard Review Plan Section 9.3, Alternative Sites (ML11276A099).

October 27, 2011 Letter from NRC to Mr. M. Nazar, FPL, Issuance of a Revised Review Schedule for the Combined License Application Review for Turkey Point, Units 6 and 7 (ML111040122).

November 10, 2011 Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Environmental Request for Additional Information RAI 5340, Standard Review Plan Section: EIS USACE – US Army Corps of Engineers, Application Section 9.3 (ML113190089).

November 10, 2011 Letter from Mr. W. Maher, FPL, to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Revised Schedule for Response to NRC Environmental Request for Additional Information Letter 110614 (RAI 5763) Environmental Standard Review Plan Section 2.3 - Water (ML11318A323).

December 8, 2011 Letter from NRC to Mr. M. Nazar, FPL Environmental Request for Additional Information Letter 1112081 Related to ESRP Section 4.2. Water-Related Impacts, for the Combined License Application Review for Turkey Point, Units 6 and 7 (ML113420010).

December 14, 2011 Letter from Mr. W. Maher, FPL to NRC eRAI Letter 1112081 Related to ESRP Section 4.2, Water-related Impacts, For the COL application review for Turkey Point, Units 6 and 7 (ML11350A197).

January 23, 2012 Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Request for Additional Information Letter 1112082 (RAI 5769) Related to ESRP Section 9.3 – Alternative Sites (ML12025A266).

January 23, 2012 Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Request for Additional Information Letter 1112081 (RAI 5765) Related to ESRP Section 4.2 – Water-Related Impacts (ML12025A263).

March 7, 2012	Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company Proposed Turkey Point Units 6 and 7, Response to NRC Request for Additional Information Letter 110614, ESRP Section 2.3, Water
March 13, 2012	Letter from NRC, NRC to Mr. M.K. Nazar, FPL, Environmental Request for Additional Information Letter 120316 Related to ESRP Section 9.3 -US Army Corps of Engineers, for the Combined License Application Review for Turkey Point, Units 6 and 7 (ML12074A005).
March 21, 2012	Letter from NRC to Mr. M.K. Nazar, FPL, Environmental Request for Additional Information Letter 122103 Related to ESRP Section 5.2, Water Related Impacts for Combined License Application Review for Turkey Point, Units 6 and 7 (ML12081A068).
March 22, 2012	Letter from NRC to Mr. M.K. Nazar, FPL, Environmental Request for Additional Information Letter 122203 Related to Environmental Standard Review Plan Section 7.2, Water Use and Quality, for the Combined License Application Review for Turkey Point, Units 6 and 7 (ML12081A238).
April 3, 2012	Letter from NRC to Mr. M. K. Nazar, FPL, Environmental Request for Additional Information Letter 120329 Related to Environmental Standard Review Plan Section 2.3.1 Hydrology, for the Combined License Application Review for Turkey Point, Units 6 and 7 (ML12089A145).
April 4, 2012	Letter from NRC to Mr. M. Nazar, FPL, Environmental Request for Additional Information Letter 120403 Related to Environmental Standard Review Plan Section 5.8.1 Etiological Agents, for the Combined License Application Review for Turkey Point, Units 6 and 7 (ML1209A302).
April 26. 2012	Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company, Proposed Turkey Point Units 6 and 7, Response to NRC Request for Additional Information Letter 120316 (RAI 6347 Rev.1) Related to ESRP Section 9.3- US Army Corps of Engineers (ML12121A365).
May 4, 2012	Letter from NRC to Mr. M.K Nazar, FPL, Turkey Point Units 6 and 7 Combined License Application Review Schedule (ML120740390).
May 7, 2012	Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company Proposed Turkey Point Units 6 and 7, Response Schedule for NRC Request for Additional Information Letter 122103 (RAI 5766 Rev. 2) Related to ESRP Section 5.2 - Water Related Impacts (ML1213A166).

May 10, 2012	Letter from NRC to Mr. M. Nazar, FPL, Environmental Request for Additional Information Letter 120510 Related to Environmental Standard Review Plan Section 5.2 Water Related Impacts for the Combined License Application Review for Turkey Point, Units 6 and 7 (ML12122A886).
May 11, 2012	Letter from Mr. M. Nazar, FPL, Florida Power & Light Company, Response to NRC COLA Review Schedule Letter dated May 4, 2012 (ML12156A420).
May 21, 2012	Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company Proposed Turkey Point Units 6 and 7, Response to NRC Request for Additional Information Letter 122103 (RAI 5766 Rev. 2) Related to ESRP Section 5.2 - Water Related Impacts (ML1214A357).
May 21, 2012	Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company Proposed Turkey Point Units 6 and 7, 10 CFR 52.3 Response to NRC Request for Additional Information Letter 120403 (RAI 6350 Rev. 1) Related to ESRP Section 5.8.1 - Etiological Agents (ML12143A356).
June 25, 2012	Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company Proposed Turkey Point Units 6 and 7, 10 CFR 52.3 Response to NRC Request for Additional Information Letter 120510 (RAI 6384 Rev. 1) Related to ESRP Section 5.2 - Water Related Impacts (ML12178A552).
June 25, 2012	Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company Proposed Turkey Point Units 6 and 7, NRC June 2010 Environmental Audit Revised Supplemental Information Request Response 2 Part 2 (ML12178A553).
June 29, 2012	Letter from Mr. R. Braun, South Florida Water Management District to NRC, Florida Power and Light Combined License Application for Turkey Point Units 6 and 7 – Water Availability at Alternative Sites (ML12191A171).
July 12, 2012	Notice of Forthcoming Public Teleconference to Discuss the Environmental Review Related to Florida Power and Light's Turkey Point Units 6 and 7, Combined License Application (ML12194A143).
July 18, 2012	Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company Proposed Turkey Point Units 6 and 7, Response to NRC Request for Additional Information Letter 120329, Related to ESRP Section 2.3.1-Hydrology (ML12202A068).
July 30, 2012	Memorandum, Summary Meeting with South Florida Water Management District Related to the Alternative Sites for the Proposed Turkey Point Units 6 and 7 Environmental Review (ML12205A348).

August 18, 2012	Memorandum, Summary of Meeting with Florida Power and Light to Discuss the Environmental Review Related to Turkey Point Units 6 and 7 Combined License Application – Socioeconomics (ML12221A192).
August 20, 2012	Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company Proposed Turkey Point Units 6 and 7, Response to NRC Request for Additional Information Letter 120329, Related to ESRP Section 2.3.1-Hydrology (ML12234A549).
August 30, 2012	Letter from NRC to Mr. M. Nazar, FPL, Environmental Request for Additional Information Letter 120830 Related to Environmental Standard Review Plan Section 9.3.1 Alternative Site Selection, for the Combined License Application Review for Turkey Point, Units 6 and 7 (ML12242A329).
October 17, 2012	Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company Proposed Turkey Point Units 6 and 7, Supplemental Response to NRC Request for Additional Information Letter 120329 Related to ESRP Section 2.3.1- Hydrology (ML12293A236).
November 14, 2012	Letter from NRC to Mr. M. Nazar, FPL, Environmental Request for Additional Information Letter 121114 Related to the Environmental Standard Review Plan Section 9.3.1 Alternative Site Selection, for the Combined License Application Review for Turkey Point, Units 6 and 7 (ML12346A225).
November 15, 2012	Notice of Forthcoming Public Meeting to Discuss Environmental Requests for Additional Information Draft Responses Relating to the Alternative Sites Selection Process for Florida Power and Light's Turkey Point Units 6 and 7 Combined License Application (ML12310A157).
December 12, 2012	Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company Proposed Turkey Point Units 6 and 7, Response to NRC Request for Additional Information Letter 120830, Related to ESRP Section 9.3.1-Alternative Site Selection (ML12349A243).
January 3, 2013	Memorandum, Summary of the Public Meeting to Discuss Environmental Requests for Additional Information Draft Responses Relating to the Alternative Site Selection Process For Florida Power and Light's Turkey Point Units 6 and 7 Combined License Application (ML12352A203).
January 10, 2013	Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company Proposed Turkey Point Units 6 and 7, Response to NRC Request for Additional Information Letter 120830, eRAI 6353 Rev 2, Related to ESRP Section 9.3.1-Alternative Site Selection (ML13011A348).

January 17, 2013	Notice of Forthcoming Public Teleconference to Follow up on Action Items from the December 7, 2012, Public Meeting Relating to the Alternative Sites Selection Process for Florida Power & Light's Turkey Point Units 6 and 7 Combined License Application (ML13002A490).
February 6, 2013	Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company Proposed Turkey Point Units 6 and 7, Response to NRC Request for Additional Information Letter 120830, Related to ESRP Section 9.3.1-Alternative Site Selection (ML13039A018).
February 12, 2013	Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company Proposed Turkey Point Units 6 and 7, Status of Actions to Address NRC COLA Review Schedule Letter dated May 4, 2012 (ML13044A567).
February 13, 2013	Letter from NRC to Mr. M. Nazar, FPL, Follow-up Questions to Environmental Requests for Additional Information 6353 Question 3 Related to ESRP Section 9.3.1 Alternative Site Selection, for the Combined License Application Review for Turkey Point Units 6 and 7 (ML13042A155).
February 25, 2013	Memorandum, Summary of Public Teleconference to Discuss Environmental Requests for Additional Information Draft Responses Relating to the Alternative Site Selection Process for Florida Power and Light's Turkey Point Units 6 and 7 Combined License Application (ML13051A425).
February 28, 2013	Letter from NRC to Mr. M.K Nazar, FPL, Turkey Point Units 6 and 7 Combined License Application Review of Alternative Sites (ML13036A340).
March 13, 2013	Letter from NRC to Mr. M. Nazar, FPL, Environmental Requests for Additional Information Letter 120316 Related to ESRP Section 9.3-US Army Corps of Engineers, for the Combined License Application Review for Turkey Point Units 6 and 7 (ML12074A005).
March 26, 2013	Letter from Mr. R. Orthen, FPL to NRC Florida Power & Light Company Proposed Turkey Point Units 6 and 7, Supplemental Response to NRC Request for Additional Information Letter 120329, Related to ESRP Section 2.3.1- Hydrology (ML13127A052).
April 2, 2013	Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company Proposed Turkey Point Units 6 and 7, Relocation Changes for the Combined License Application, Part 3 Environmental Report, Subsection 3.9, Preconstruction and Construction Activities (ML13093A409).

April 18, 2013	Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company Proposed Turkey Point Units 6 and 7, Supplemental Response to NRC Request for Additional Information Letter 120830, Related to ESRP Section 9.3.1- Alternative Site Selection Process (ML13109A431).
May 10, 2013	Notice of Forthcoming Meeting to Discuss Environmental Requests for Additional Information Draft Responses Relating to the Alternative Sites Selection Process for Turkey Point Units 6 and 7 Combined License Application (ML13130A327).
June 19, 2013	Memorandum, Summary of Public Meeting to Discuss the Environmental Review for Florida Power and Light's Turkey Point Units 6 and 7 Combined License Application (ML13158A220).
July 8, 2013	Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company Proposed Turkey Point Units 6 and Supplemental Response to NRC Request for Additional Information Letter 120830, Related to ESRP Section 9.3.1- Alternative Site Selection (ML13196A063).
July 8, 2013	Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company Proposed Turkey Point Units 6 and Supplemental Response to NRC Request for Additional Information Letter 121114, Related to ESRP Section 9.3.1- Alternative Site Selection (ML13196A064).
September 11, 2013	Letter from Mr. M. Raffenberg, FPL to US Army Corps of Engineers, Regarding Requests for Additional Information for a Department of the Army Permit, Assigned Number SAJ-2009-02417, Turkey Point Units 6 and 7 Project (ML15037A237).
October 9, 2013	Letter from NRC to Mr. M. Nazar, FPL, Environmental Request for Additional Information Letter 131009 Related to the Environmental Standard Review Plan Section 9.3.1 Alternative Site Selection, for the Combined License Application Review for Turkey Point, Units 6 and 7 (ML13280A543).
November 1, 2013	Notice of Forthcoming Public Meeting to Discuss the Alternative Sites Selection Analysis for Florida Power and Light's Turkey Point Units 6 and 7 Combined License Application (ML13301A630).
November 25, 2013	Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company Proposed Turkey Point Units 6 and 7, Response to NRC Request for Additional Information Letter 131009, Related to ESRP Section 9.3- Alternative Site Selection Process (ML13330B668).
December 13, 2013	Memorandum, Summary of Public Meeting Discussing the Alternative Sites Selection Process for Florida Power and Light's Turkey Point Units 6 and 7 Combined License Application (ML13343A323).

April 17, 2014	Letter from NRC to Mr. M.K Nazar, FPL, Turkey Point Units 6 and 7 Combined License Application Environmental Review of Alternative Sites and Schedule Updates (ML14065A577).
June 4, 2014	Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company Proposed Turkey Point Units 6 and 7, Supplemental Response to NRC Request for Additional Information Letter No. 72, Liquid Waste Management Systems (ML14156A393).
June 12, 2014	Notice of Forthcoming Public Teleconference to Discuss Potential Construction Noise Impacts to Aquatic Ecology Relating to the Florida Power and Light Turkey Point Units 6 and 7 Combine License Application (ML14163A426).
June 18, 2014	Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company Proposed Turkey Point Units 6 and 7, Supplemental Response to NRC Request for Additional Letter No .080, Related to SRP Section 20.01.03 Population Density (ML14188C484).
July 22, 2014	Memorandum, Summary of the June 23, 2014, Public Teleconference to Discuss Potential Aquatic Ecology Construction Impacts as a Result of the Florida Power and Light's turkey Point Units 6 and 7 Combined License Application (ML14211A534).
August 12, 2014	Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company Proposed Turkey Point Units 6 and 7, Construction Noise and Vibration Aquatic Impacts Assessment Report for the Combined License Application Part 3, Environmental Report (ML14226A013).
October 22, 2014	Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company Proposed Turkey Point Units 6 and 7, Supplemental Response to NRC Request for Additional Information Letter No. 031, Standard Review Plan Section 12.03-12.04, Radiation Protection Design Features (ML14303A671).
November 14, 2014	Memorandum, Supplemental Site Audit Summary Related to the Environmental Review of the Proposed Turkey Point Nuclear Power Plant Units 6 and 7 (ML14311A792).
February 25, 2015	Letter from NRC to Mr. L. Williams, U.S. Fish and Wildlife Service, Request for Comments on the Draft Environmental Impact Statement and Biological Assessment for Turkey Point Nuclear Plant Units 6 and 7 (ML15049A309).

February 25, 2015	Letter from NRC to Mr. R. Neslon, Advisory Council on Historic Preservation, Notification of the Issuance of the Draft Environmental Impact Statement for the Turkey Point Nuclear Plant Units 6 and 7 (ML15049A317).
February 25, 2015	Letter from NRC to Mr. M. Nazar, Florida Power & Light Company, Notice of Availability of the Draft Environmental Impact Statement for Turkey Point Nuclear Plant Units 6 and 7 (ML15049A302).
February 25, 2015	Letter from NRC to Mr. M. Croom, U.S. National Marine Fisheries Services, Request for Comments on the Draft Environmental Impact Statement, Essential Fish Habitat, and Biological Assessment for the Turkey Point Nuclear Plant Units 6 and 7 (ML15049319).
February 26, 2015	Letter from NRC to Mr. H. Mueller, U.S. Environmental Protection Agency, Notification of the Issuance of the Draft Environmental Impact Statement for the Turkey Point Nuclear Plant Units 6 and 7 (ML15049A313).
March 5, 2015	NRC Federal Register Notice, Florida Power and Light Company, Combined License Application for Turkey Point Nuclear Power Plant, Units 6 and 7 Draft Environmental Impact Statement Request for Comments (ML15049A320).
March 6, 2015	Environmental Protection Agency (EPA) Federal Register Notice, Florida Power & Light Company, Combined License Application for Turkey Point Nuclear Power Plant, Units 6 and 7 Draft Environmental Impact Statement Request for Comments 80 FR 12173.
March 16, 2015	Letter from NRC to Dr. T. Parsons, Compliance and Review, Notification of the Issuance of the Draft Environmental Impact Statement for the Turkey Point Nuclear Plant Units 6 and 7 (ML15065A208).
March 16, 2015	Letter from NRC to Mr. F. Dayhoff, Miccosukee Tribe of Indians of Florida Notification of the Issuance of the Draft Environmental Impact Statement for the Turkey Point Nuclear Plant Units 6 and 7 (ML15065A305).
March 16, 2015	Letter from NRC to Mr. E. Spain, Muscogee (Creek) Nation, Notification of the Issuance of the Draft Environmental Impact Statement for the Turkey Point Nuclear Plant Units 6 and 7 (ML15065A322).
March 16, 2015	Letter from NRC to Mr. R. Thrower, Poarch Band of Creek Indians, Notification of the Issuance of the Draft Environmental Impact Statement for the Turkey Point Nuclear Plant Units 6 and 7 (ML15065A330).
March 16, 2015	Letter from NRC to Ms. N. Harjo, Seminole Nation of Oklahoma, Notification of the Issuance of the Draft Environmental Impact Statement for the Turkey Point Nuclear Plant Units 6 and 7 (ML15065A365).

March 16, 2015	Letter from NRC to Dr. P. Backhouse, Seminole Tribe of Florida Notification of the Issuance of the Draft Environmental Impact Statement for the Turkey Point Nuclear Plant Units 6 and 7 (ML15065A366).
March 16, 2015	Letter from NRC to Mr. R. Carr, Archeological and Historical Conservancy, Inc., Notification of the Issuance of the Draft Environmental Impact Statement for the Turkey Point Nuclear Plant Units 6 and 7 (ML15069A578).
March 16, 2015	Letter from NRC to Mr. R. Bendus, State Historic Preservation Officer, Notification of the Issuance of the Draft Environmental Impact Statement for the Turkey Point Nuclear Plant Units 6 and 7 (ML15069A558).
March 16, 2015	Letter from NRC to Ms. M. Schmitt, Preservation Officer, City of Miami, Notification of the Issuance of the Draft Environmental Impact Statement for the Turkey Point Nuclear Plant Units 6 and 7 (ML15065A182).
March 16, 2015	Letter from NRC to Ms. K. Kauffman, Office of Historic Preservation, Notification of the Issuance of the Draft Environmental Impact Statement for the Turkey Point Nuclear Plant Units 6 and 7 (ML15065A261).
March 17, 2015	Letter from NRC to Mr. R. Ammirato, Homestead Community Redevelopment Agency, Notification of the Issuance of the Draft Environmental Impact Statement for the Turkey Point Nuclear Plant Units 6 and 7 (ML15076A291).
March 17, 2015	Letter from NRC to Ms. D. Spain, Historic Preservation Administrator, Notification of the Issuance of the Draft Environmental Impact Statement for the Turkey Point Nuclear Plant Units 6 and 7 (ML15065A363).
March 17, 2015	Letter from NRC to Mr. C. Brimo, City of South Miami, Notification of the Issuance of the Draft Environmental Impact Statement for the Turkey Point Nuclear Plant Units 6 and 7 (ML15076A244).
April 27, 2015	Email from Seminole Tribe of Florida to U.S. Army Corps of Engineers Regarding Seminole Tribe of Florida Request to Extend Turkey Point Comment Period on the Draft Environmental Impact Statement (ML15153A255).
May 14, 2015	Email from National Park Service to NRC Requesting NRC to Extend Turkey Point Comment Period on the Draft Environmental Impact Statement (ML15153A234).
May 14, 2015	Email from U.S. Environmental Protection Agency Requesting NRC to Extend Turkey Point Comment Period on the Draft Environmental Impact Statement (ML15153A227).

June 23, 2015	Summary of the June 23, 2015, U.S. Army Corps of Engineers, and the NRC Meeting with Seminole Tribe of Florida to Discuss Turkey Point National Historic Preservation Act Section 106 Consultation (ML16266A254).
June 24, 2015	Summary of the June 24, 2015, U.S. Army Corps of Engineers, and the NRC Meeting with Miccosukee Tribe of Indians of Florida to Discuss Turkey Point National Historic Preservation Act Section 106 Consultation (ML16266A255).
August 20, 2015	Memorandum, Summary of Public Meeting Conducted for the Draft Environmental Impact Statement for the Turkey Point Units 6 and 7 Combined License Application (ML15219A261).
October 5, 2015	Letter from Mr. B. M. Mueller, Seminole Tribe of Florida Tribal Historic Preservation Officer, to Ms. M. Clouser, U.S. Army Corps of Engineers, Related to Transmission Line Corridors for the Combined License Application Review for Turkey Point, Units 6 and 7 (ML15289A368).
November 2, 2015	Letter from NRC to Mr. M. Nazar, FPL Environmental Request for Additional Information Letter 150211 Related to Aquatic and Terrestrial Ecology and Hydrology/Groundwater, for the Combined License Application Review for Turkey Point, Units 6 and 7 (ML15307A160).
December 17, 2015	Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company Proposed Turkey Point Units 6 and 7, Partial Response to NRC Request for Additional Information Letter No. 150211, Related to Hydrology/Ground Water (ML15364A408).
January 25, 2016	Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company Proposed Turkey Point Units 6 and 7, Supplemental Response to NRC Request for Additional Information Letter No. 150211, Related to Hydrology/Ground Water (ML16028A121).
February 3, 2016	Letter from NRC to Mr. M. Nazar, FPL Environmental Request for Additional Information Letter 160302 Related to Radioactive Waste-Management Systems and Meteorology and Air Quality, for the Combined License Application Review for Turkey Point, Units 6 and 7 (ML16033A453).
February 22, 2016	Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company Proposed Turkey Point Units 6 and 7, Response to NRC Request for Additional Information Letter 160302, Related to Radioactive Waste Management Systems (ML16061A223).

February 29, 2016	Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company Proposed Turkey Point Units 6 and 7, Response to NRC Request for Additional Information Letter 160302, Related to Meteorology and Air Quality (ML16062A035).
March 7, 2016	Letter from Mr. I. Gilbert, U.S. Army of Corps of Engineers to Mr. F. Dayhoff, Miccosukee Tribe of Indians of Florida Tribal Historic Preservation Officer, Related to Consultation and Coordination for the Combined License Application Review for Turkey Point, Units 6 and 7 (ML16172A120).
March 7, 2016	Letter from Mr. W. Maher, FPL to NRC, Florida Power & Light Company Proposed Turkey Point Units 6 and 7, Partial Response to NRC Request for Additional Information Letter 150211, Related to Hydrology/Ground Water (ML16071A005).
March 31. 2016	Letter from Mr. M. Raffenberg, FPL to Ms. M. Clouser, U.S. Army Corps of Engineers, Related to Transmission Line Corridors for the Combined License Application Review for Turkey Point, Units 6 and 7 (ML16095A127).
August 2, 2016	Letter from Mr. B. M. Mueller, Seminole Tribe of Florida Tribal Historic Preservation Officer, to Ms. M. Clouser, U.S. Army Corps of Engineers, Related to Cultural Resources for the Combined License Application Review for Turkey Point, Units 6 and 7 (ML16266A253).
September 28, 2016	Letter from NRC to Mr. L. Williams, U.S. Fish and Wildlife Service, Response to Comments Received on the Biological Assessment for the Proposed Turkey Point Units 6 and 7 (ML16237A312).
October 27, 2016	Supplemental Site Audit Trip Report Related to the Environmental Review of the Proposed Turkey Point Units 6 and 7 (ML16280A339).

APPENDIX D

SCOPING COMMENTS AND RESPONSES

APPENDIX D

SCOPING COMMENTS AND RESPONSES

On June 15, 2010, the U.S. Nuclear Regulatory Commission (NRC) published a Notice of Intent to Prepare an Environmental Impact Statement and Conduct Scoping Process in the *Federal Register* (75 FR 33851) (TN511). The Notice of Intent notified the public of the staff's intent to prepare an environmental impact statement (EIS) and conduct scoping for the applications for combined construction permits and operating licenses (COLs) received from Florida Power & Light Company (FPL) for two units, identified as Units 6 and 7, to be located at the Turkey Point site. The Turkey Point Nuclear Generating Station site is located approximately 4.5 mi east of Homestead Florida and approximately 25 mi south of the City of Miami, Florida. The NRC invited the applicant; Federal, Tribal, State, and local government agencies; local organizations; and individuals to participate in the scoping process by providing oral comments at the scheduled public meeting and/or submitting written suggestions and comments no later than August 16, 2010.

D.1 Overview of the Scoping Process

The scoping process provides an opportunity for public participants to identify issues to be addressed in the EIS and highlight public concerns and issues. The Notice of Intent identified the following objectives of the scoping process:

- Define the proposed action that is to be the subject of the EIS.
- Determine the scope of the EIS and identify significant issues to be analyzed in depth.
- Identify and eliminate from detailed study those issues that are peripheral or that are not significant.
- Identify any environmental assessments and other EISs that are being prepared or will be prepared that are related to, but not part of, the scope of the EIS being considered.
- Identify other environmental review and consultation requirements related to the proposed action.
- Identify parties consulting with the NRC under the National Historic Preservation Act, as set forth in Title 36 of the Code of Federal Regulations (CFR) 800.8(c)(1)(i) (TN513).
- Indicate the relationship between the timing of the preparation of the environmental analyses and the Commission's tentative planning and decision-making schedule.
- Identify any cooperating agencies and, as appropriate, allocate assignments for preparation and schedules for completing the EIS to the NRC and any cooperating agencies.
- Describe how the EIS will be prepared and include any contractor assistance to be used.

Two public scoping meetings were held at the Homestead Young Men's Christian Association facility located at 1034 Northeast 8th Street, Homestead, Florida, on July 15, 2010. Approximately 150 to 200 people attended each scoping meeting session. The scoping

meetings began with NRC staff members providing a brief overview of NRC's review process for COL applications and the National Environmental Policy Act of 1969, as amended (NEPA) process (42 USC 4321 et seq.) (TN661). In addition, a representative of the U.S. Army Corps of Engineers (USACE) discussed the USACE regulatory role and authority and permitting decisions. After the NRC's and USACE's prepared statements, the meeting was opened for public comments. Forty six attendees provided either written statements or oral comments that were recorded and transcribed by a certified court reporter. In addition to the oral and written statements provided at the public scoping meetings, 10 letters and 32 emails were received during the scoping period.

Transcripts for both the afternoon and evening scoping meetings can be found in the NRC Agencywide Documents Access and Management System (ADAMS) under accession numbers ML102150591 (NRC 2010-TN518) and ML102150597 (NRC 2010-TN519), respectively. ADAMS is accessible from the NRC website at http://www.nrc.gov/reading-rm/adams.html#web-based-adams (in the Public Electronic Reading Room; note: the URL is case-sensitive). Additional comments received later in letters or emails are also available. A meeting summary memorandum (ML102170529, NRC 2010-TN514) was issued August 31, 2010.

At the conclusion of the scoping period, the NRC staff reviewed the scoping meeting transcripts and all written material received during the comment period and identified individual comments. These comments were organized according to topic within the proposed EIS or according to the general topic if they were outside the scope of the EIS. Once comments were grouped according to subject area, the staff determined the appropriate response for the comment. The staff made a determination on each comment that it was one of the following:

- a comment that was actually a question and introduced no new information
- a comment that was either related to support or opposition of combined licensing in general (or specifically the Turkey Point COL) or made a general statement about the COL process. In addition, it provided no new information and did not pertain to 10 CFR Part 52 (TN251).
- a comment about an environmental issue that
  - provided new information that would require evaluation during the review
  - provided no new information.
- a comment that was outside the scope of the COL, which included, but was not limited to
  - a comment about the safety record of the applicant.

Preparation of the EIS has taken into account the relevant issues raised during the scoping process. The comments received on the draft EIS will be considered in the preparation of the final EIS. The final EIS, along with the staff's Safety Evaluation Report (SER), will provide much of the basis for the NRC's decision on whether to grant the Turkey Point COLs.

The comments related to this environmental review are included in this appendix. They were extracted from the *Turkey Point Nuclear Plant Combined License Scoping Summary Report* (ML103130610 [NRC 2010-TN515] and ML103130612 [NRC 2010-TN516]) and are provided for the convenience of those interested specifically in the scoping comments applicable to this

environmental review. The comments that are outside the scope of the environmental review for the proposed Turkey Point site are not included in this appendix. These include comments related to the following:

- safety
- emergency preparedness
- NRC oversight for operating plants
- security and terrorism
- support or opposition to the licensing action, licensing process, nuclear power, hearing process, or the applicant.

More detail regarding the disposition of general or out-of-scope comments can be found in the Scoping Summary Report. To maintain consistency with the Scoping Summary Report, the comment source identification (ID) and comment number along with the name of the commenter used in that report are retained in this appendix.

Table D-1 identifies, in alphabetical order, the individuals who provided comments during the scoping period, their affiliation (if given), and the ADAMS accession number that can be used to locate the correspondence. Although all commenters are listed, the comments presented in this appendix are limited to those within the scope of the environmental review. Table D-2 lists the comment categories in alphabetical order and commenter names and comment numbers for each category. Table D-3 lists the comment categories in the order they are presented in this appendix. The balance of this appendix presents the comments themselves with NRC staff responses organized by topic category.

Table D-1. Individuals Providing Comments During the Scoping Comment Period

Commenter	Affiliation (if stated)	Comment Source and ADAMS Accession #	Correspondence ID
Anonymous		Letter (ML102100532)	0011
Accursio, James	Capri Restaurant, Inc.	Meeting Transcript (ML102090730)	0003-4
Alexander, William	Latin Chamber of Commerce	Meeting Transcript (ML102150597)	0002-10
Amor, Valerie		Meeting Transcript (ML102150591)	0001-11
Bass, Ken		Email (ML102000006)	0005
Burris, Jessica		Email (ML102000003)	0007
Cornick, Lance	National Parks Conservation Association	Meeting Transcript (ML102150591)	0001-15
Croom, Miles	NOAA	Email (ML102320025)	0033
Daley, Dennis	Self	Meeting Transcript (ML102150591)	0001-20
De Villiers, Elena	Self	Letter (ML102370766)	0031

Table D-1. (contd)

Commenter	Affiliation (if stated)	Comment Source and ADAMS Accession #	Correspondence ID
del Cid, Victor	Self	Meeting Transcript (ML102150597)	0002-4
Diggs, Bill	Miami-Dade Chamber of Commerce	Meeting Transcript (ML102150591)	0001-17
DiNuzzo, Laura	Self	Email (ML102310004)	0028
Eney, Douglas	Self	Meeting Transcript (ML102150597)	0002-17
Espinosa, Carlos	Department of Environmental Resources Management	Letter (ML102370765)	0015
Fessler, Greg	Self	Meeting Transcript (ML102150591)	0001-28
Finlan, Mary	Great Homestead/Florida City Chamber of Commerce	Meeting Transcript (ML102150597)	0002-15
Flinn, Eugene	Village of Palmetto Bay	Meeting Transcript (ML102150591)	0001-22
Garcia, Maria	Self	Meeting Transcript (ML102150591)	0001-27
Garcia, Preston		Email (ML102000004)	0008
Golden, James	Self	Letter (ML102370759)	0032
Grosso, Richard	Everglades Law Center	Meeting Transcript (ML102150597)	0002-6
Guendelsberger, Debra	Self	Letter (ML102300037)	0029
Gustave, Unito	Board of County Commissioners, Miami-Dade County	Meeting Transcript (ML102150591)	0001-26
Hamilton, Karen	Self	Email (ML102280577)	0019
Hancock, Mandy	Southern Alliance for Clean Energy	Meeting Transcript (ML102150591)	0001-14
Hancock, Mandy	Southern Alliance for Clean Energy	Meeting Transcript (ML102150597)	0002-18
Harris, Walter	South Miami	Meeting Transcript (ML102150591)	0001-2
Harum-Alvarez, Albert	Self	Meeting Transcript (ML102150591)	0001-24
Hogsed, Daniel		Email (ML102000002)	0009
Horton, Richard	Economic Development Council, South Miami-Dade	Meeting Transcript (ML102150591)	0001-25
Jacobs, Jeanne	Miami-Dade College Homestead	Meeting Transcript (ML102150591)	0001-4
Johnson, Barry	Greater Miami Chamber of Commerce	Meeting Transcript (ML102150591)	0001-5

Table D-1. (contd)

Commenter	Affiliation (if stated)	Comment Source and ADAMS Accession #	Correspondence ID
Johnson, Michael	Florida Carpenter's Regional Council	Meeting Transcript (ML102150591)	0001-8
Kammerer, Laura	Florida Division of Historical Resources	Letter (ML102220345)	0013
Kauffman, Kathleen	Miami-Dade County Department of Planning and Zoning	Email (ML102290548)	0026
Kiley, Mike	Turkey Point	Meeting Transcript (ML102150591)	0001-3
Kiley, Mike	Turkey Point	Meeting Transcript (ML102150597)	0002-5
Kimball, Dan	National Park Service	Email (ML102290549)	0025
Kipnis, Daniel	Self	Email (ML102320036)	0034
LaFerrier, Marc		Email (ML102290222)	0023
Landeta, Hector		Meeting Transcript (ML102150591)	0001-18
Lee, Nancy		Email (ML102070008)	0010
Lee, Nancy	Urban Environment League	Meeting Transcript (ML102150591)	0001-12
Lerner, Cindy	Village of Pinecrest	Meeting Transcript (ML102150591)	0001-21
Lewis, Mark	National Park Service	Email (ML102290549)	0025
MacLaren, Kaitlin	Tropical Audubon Society	Meeting Transcript (ML102150591)	0001-7
Marinelli, Francis J.	Self	Meeting Transcript (ML102150591)	0001-10
Martinelli, Tom	Clean and Safe Energy Coalition	Meeting Transcript (ML102150591)	0001-9
Martinelli, Tom	Clean and Safe Energy Coalition	Meeting Transcript (ML102150597)	0002-9
McHugh, John	Self	Meeting Transcript (ML102150597)	0002-12
Meerbott, Tim	Cutler Bay	Meeting Transcript (ML102150597)	0002-2
Miller, Lloyd		Meeting Transcript (ML102150591)	0001-6
Moses, Dorothy	Self	Email (ML102300015)	0027
Mueller, Heinz	EPA	Letter (ML102250207)	0014
Mulkey, Cindy	Self	Email (ML102280580)	0020
O'Katy, Jessica	Self	Meeting Transcript (ML102150597)	0002-8
Payne, Nkenga	City of South Miami	Letter (ML102160400)	0012

Table D-1. (contd)

Commenter	Affiliation (if stated)	Comment Source and ADAMS Accession #	Correspondence ID
Poole, Mary Ann	Florida Fish and Wildlife Conservation Commission	Email (ML102280488)	0018
Reynolds, Laura	Self	Email (ML102290221)	0022
Roff, Rhonda		Meeting Transcript (ML102150597)	0002-11
Ryan, Megan	Self	Meeting Transcript (ML102150591)	0001-19
Schwartz, Matthew	Broward Group of the Sierra Club	Meeting Transcript (ML102150597)	0002-14
Shlackman, Mara	Self	Meeting Transcript (ML102150597)	0002-16
Showen, Steve	Citizens Alliance for Safe Energy	Meeting Transcript (ML102150591)	0001-16
Simpson, Roce	South Florida Building and Construction Trades and International Brotherhood of Electrical Workers,	Meeting Transcript (ML102150597)	0002-13
Singer, Craig		Email (ML102000005)	0004
Smilan, Stan	Self	Meeting Transcript (ML102150591)	0001-13
Snelson, Richard	Self	Meeting Transcript (ML102150597)	0002-7
Sorenson, Katy	Self	Meeting Transcript (ML102150597)	0002-1
Troner, Susannah	Self	Email (ML102280487)	0017
Vrooman, Paul	Cutler Bay	Meeting Transcript (ML102150591)	0001-23
Walker, Tom	Florida Keys Aqueduct Authority	Email (ML102290224)	0024
Walker, Tom	Florida Keys Aqueduct Authority	Meeting Transcript (ML102150597)	0002-3
Wallace, Otis	Florida City	Meeting Transcript (ML102150591)	0001-1
Weins, Brian		Email (ML102000007)	0006
White, Barry	Citizens Allied for Safe Energy, Inc.	Email (ML102280490)	0016
White, Barry	Citizens Allied for Safe Energy, Inc.	Meeting Transcript (ML102090730)	0003-2
Wilansky, Laura	Self	Email (ML102290220)	0021

Table D-2. Comment Categories with Associated Commenters and Comment IDs

Comment Category	Commenter (Comment ID)
Accidents-Severe	• Hancock, Mandy (0001-14-9)
Alternatives-Energy	• Amor, Valerie (0001-11-7) (0001-11-8) (0001-11-11) • Burris, Jessica (0007-7) • De Villiers, Elena (0031-6) • DiNuzzo, Laura (0028-3) (0028-4) (0028-6) • Finlan, Mary (0002-15-4) • Guendelsberger, Debra (0029-2) • Hancock, Mandy (0001-14-3) (0001-14-4) (0001-14-7) (0002-18-3) • Harum-Alvarez, Albert (0001-24-4) • Hogsed, Daniel (0009-2) (0009-4) • Kiley, Mike (0001-3-3) • Lerner, Cindy (0001-21-5) • Mueller, Heinz (0014-16) • O'Katy, Jessica (0002-8-3) (0002-8-9) • Payne, Nkenga (0012-2) (0012-15) (0012-18) • Ryan, Megan (0001-19-4) • Schwartz, Matthew (0002-14-3) • Shlackman, Mara (0002-16-4) • Showen, Steve (0001-16-8) • Smilan, Stan (0001-13-8) • Sorenson, Katy (0002-1-4) • Troner, Susannah (0017-3) (0017-5) • Weins, Brian (0006-4) • White, Barry (0016-12) • Wilansky, Laura (0021-12) (0021-20)
Alternatives-Sites	• Cornick, Lance (0001-15-1) • Kimball, Dan (0025-1-6) (0025-1-7) (0025-1-8) (0025-1-9) (0025-1-10) • Lerner, Cindy (0001-21-6) • Lewis, Mark (0025-1-6) (0025-1-7) (0025-1-8) (0025-1-9) (0025-1-10) • Meerbott, Tim (0002-2-1) • Miller, Lloyd (0001-6-9) • Moses, Dorothy (0027-2) • Ryan, Megan (0001-19-3) • Sorenson, Katy (0002-1-1)
Alternatives-System Design	• Kimball, Dan (0025-2-12) (0025-3-22) (0025-3-47) • LaFerrier, Marc (0023-1-25) (0023-1-49) (0023-2-7) (0023-3-48) • Lewis, Mark (0025-2-12) (0025-3-22) (0025-3-47) • Poole, Mary Ann (0018-9) (0018-14)

Table D-2. (contd)

Comment Category	Commenter (Comment ID)
Benefit-Cost Balance	• De Villiers, Elena (0031-4) • Grosso, Richard (0002-6-8) • Hamilton, Karen (0019-8) (0019-11) • Hancock, Mandy (0001-14-2) • Harum-Alvarez, Albert (0001-24-1) (0001-24-3) • Payne, Nkenga (0012-14) • Reynolds, Laura (0022-2-10) (0022-3-16) • Ryan, Megan (0001-19-5) • Showen, Steve (0001-16-5) (0001-16-6) • Singer, Craig (0004-2) • Troner, Susannah (0017-1) • White, Barry (0003-2-2) (0016-7) • Wilansky, Laura (0021-15) (0021-18)
Cumulative Impacts	• Espinosa, Carlos (0015-5) • Golden, James (0032-28) • Hamilton, Karen (0019-3) • Harris, Walter (0001-2-3) • Kimball, Dan (0025-1-12) (0025-1-15) (0025-2-13) • Kipnis, Daniel (0034-1) (0034-2) (0034-3) (0034-4) (0034-5) • LaFerrier, Marc (0023-1-10) • Lerner, Cindy (0001-21-3) • Lewis, Mark (0025-1-12) (0025-1-15) (0025-2-13) • MacLaren, Kaitlin (0001-7-1) (0001-7-2) (0001-7-4) (0001-7-8) (0001-7-9) • Miller, Lloyd (0001-6-5) • Mueller, Heinz (0014-7) (0014-14) • Payne, Nkenga (0012-6) (0012-9) • Reynolds, Laura (0022-1-9) (0022-2-17) (0022-4-17) • Shlackman, Mara (0002-16-1) (0002-16-2) • Sorenson, Katy (0002-1-2) • White, Barry (0016-5) (0016-6) (0016-14) • Wilansky, Laura (0021-4)
Decommissioning	• Reynolds, Laura (0022-4-14) • Wilansky, Laura (0021-6)
Ecology-Aquatic	• Amor, Valerie (0001-11-10) • Croom, Miles (0033-1) (0033-2) (0033-3) (0033-4) (0033-7) (0033-9) (0033-10) • Golden, James (0032-9) • Grosso, Richard (0002-6-7) • Kimball, Dan (0025-1-11) (0025-1-14) (0025-3-17) (0025-3-18) (0025-3-19) (0025-3-29) (0025-3-30) • LaFerrier, Marc (0023-1-18) (0023-1-36) (0023-1-64) (0023-2-14) (0023-2-15)

Table D-2. (contd)

Comment Category	Commenter (Comment ID)
	• Lewis, Mark (0025-1-11) (0025-1-14) (0025-3-17) (0025-3-18) (0025-3-19) (0025-3-29) (0025-3-30) • Mulkey, Cindy (0020-2) • Poole, Mary Ann (0018-2) (0018-4) (0018-6) (0018-8) (0018-10) • Reynolds, Laura (0022-2-6) (0022-2-7) (0022-3-1) (0022-3-18) (0022-3-21)
Ecology-Terrestrial	• Amor, Valerie (0001-11-3) • Burris, Jessica (0007-1) (0007-3) • Croom, Miles (0033-11) • Espinosa, Carlos (0015-3) (0015-4) • Garcia, Preston (0008-2) • Golden, James (0032-12) (0032-14) (0032-16) (0032-17) (0032-19) (0032-25) (0032-27) (0032-35) (0032-36) • Grosso, Richard (0002-6-5) • Kimball, Dan (0025-2-6) (0025-2-11) (0025-2-18) (0025-3-31) (0025-3-32) (0025-3-33) (0025-3-34) (0025-3-43) • LaFerrier, Marc (0023-1-17) (0023-1-19) (0023-1-22) (0023-1-46) (0023-1-50) (0023-1-62) (0023-1-63) (0023-1-71) (0023-2-5) (0023-2-8) (0023-2-9) (0023-2-10) (0023-2-11) (0023-2-12) (0023-2-13) (0023-2-16) (0023-2-17) (0023-2-30) (0023-2-31) (0023-2-32) (0023-3-18) (0023-3-22) (0023-3-23) (0023-3-24) (0023-3-25) (0023-3-51) (0023-3-53) (0023-3-69) (0023-4-5) (0023-4-9) (0023-4-14) (0023-4-15) (0023-4-16) (0023-4-18) (0023-4-20) • Lewis, Mark (0025-2-6) (0025-2-11) (0025-2-18) (0025-3-31) (0025-3-32) (0025-3-33) (0025-3-34) (0025-3-43) • MacLaren, Kaitlin (0001-7-3) • Miller, Lloyd (0001-6-4) • Mueller, Heinz (0014-10) (0014-15) (0014-17) (0014-18) • Payne, Nkenga (0012-7) • Poole, Mary Ann (0018-3) (0018-5) (0018-16) • Reynolds, Laura (0022-1-16) (0022-1-17) (0022-1-19) (0022-2-3) (0022-2-21) • Schwartz, Matthew (0002-14-10) • Simpson, Roce (0002-13-7)
Geology	• Reynolds, Laura (0022-1-14)
Health-Nonradiological	• Burris, Jessica (0007-4) • De Villiers, Elena (0031-3) • Hamilton, Karen (0019-6) • Kimball, Dan (0025-3-28) • LaFerrier, Marc (0023-1-11) (0023-3-35) • Lewis, Mark (0025-3-28) • O'Katy, Jessica (0002-8-6) • Reynolds, Laura (0022-1-15) (0022-1-18) (0022-1-20) (0022-2-2) • Schwartz, Matthew (0002-14-7)

Table D-2. (contd)

Comment Category	Commenter (Comment ID)
	• White, Barry (0003-2-1) (0016-3)
Health-Radiological	• , Anonymous (0011-1) • Burris, Jessica (0007-5) • O'Katy, Jessica (0002-8-8) • Payne, Nkenga (0012-8) • Reynolds, Laura (0022-4-8) (0022-4-10) (0022-4-11) (0022-4-12) (0022-4-15) • Showen, Steve (0001-16-3) (0001-16-4) • Smilan, Stan (0001-13-6) • Walker, Tom (0002-3-7) (0024-4) • Wilansky, Laura (0021-9) (0021-14) (0021-19)
Historic and Cultural Resources	• Kammerer, Laura (0013-1) • Kauffman, Kathleen (0026-1) (0026-2) • Kimball, Dan (0025-3-41) • LaFerrier, Marc (0023-2-1) (0023-3-32) (0023-3-33) • Lewis, Mark (0025-3-41)
Hydrology-Groundwater	• Croom, Miles (0033-5) (0033-6) (0033-8) • De Villiers, Elena (0031-7) • DiNuzzo, Laura (0028-2) • Espinosa, Carlos (0015-2) • Golden, James (0032-7) (0032-8) (0032-11) (0032-29) (0032-30) (0032-31) (0032-32) • Grosso, Richard (0002-6-9) • Kimball, Dan (0025-1-4) (0025-1-5) (0025-1-13) (0025-2-1) (0025-3-1) (0025-3-2) (0025-3-3) (0025-3-4) (0025-3-5) (0025-3-6) (0025-3-7) (0025-3-8) (0025-3-9) (0025-3-10) (0025-3-11) (0025-3-12) (0025-3-13) (0025-3-14) (0025-3-16) (0025-3-21) • LaFerrier, Marc (0023-1-1) (0023-1-2) (0023-1-3) (0023-1-4) (0023-1-7) (0023-1-9) (0023-1-14) (0023-1-15) (0023-1-29) (0023-1-31) (0023-1-32) (0023-1-33) (0023-1-34) (0023-1-35) (0023-1-37) (0023-1-38) (0023-1-39) (0023-1-40) (0023-1-41) (0023-1-42) (0023-1-44) (0023-1-47) (0023-1-66) (0023-1-67) (0023-1-68) (0023-1-70) (0023-3-13) (0023-3-38) (0023-3-40) (0023-3-47) (0023-4-10) • Lerner, Cindy (0001-21-2) • Lewis, Mark (0025-1-4) (0025-1-5) (0025-1-13) (0025-2-1) (0025-3-1) (0025-3-2) (0025-3-3) (0025-3-4) (0025-3-5) (0025-3-6) (0025-3-7) (0025-3-8) (0025-3-9) (0025-3-10) (0025-3-11) (0025-3-12) (0025-3-13) (0025-3-14) (0025-3-16) (0025-3-21) • MacLaren, Kaitlin (0001-7-10) • McHugh, John (0002-12-1) (0002-12-6) (0002-12-9) (0002-12-10) • Miller, Lloyd (0001-6-3) (0001-6-6) • Moses, Dorothy (0027-6) (0027-7) • Mueller, Heinz (0014-5) (0014-6) • Mulkey, Cindy (0020-1)

Table D-2. (contd)

Comment Category	Commenter (Comment ID)
	• O'Katy, Jessica (0002-8-4) • Poole, Mary Ann (0018-1) • Reynolds, Laura (0022-1-1) (0022-1-21) (0022-2-8) (0022-2-9) (0022-2-13) (0022-2-20) (0022-3-2) (0022-3-3) (0022-3-8) (0022-3-9) (0022-4-6) (0022-4-7) • Walker, Tom (0002-3-1) (0002-3-2) (0002-3-3) (0002-3-5) (0024-1) (0024-2) (0024-3) (0024-5) (0024-6) • White, Barry (0016-8)
Hydrology-Surface Water	• Burris, Jessica (0007-6) • Cornick, Lance (0001-15-2) (0001-15-3) • Croom, Miles (0033-12) (0033-13) • Eney, Douglas (0002-17-6) • Espinosa, Carlos (0015-6) • Golden, James (0032-2) (0032-3) (0032-4) (0032-5) (0032-6) (0032-10) (0032-13) (0032-23) (0032-26) (0032-34) • Grosso, Richard (0002-6-1) (0002-6-2) • Hancock, Mandy (0001-14-6) • Kimball, Dan (0025-2-4) (0025-2-15) (0025-2-17) (0025-3-15) (0025-3-35) (0025-3-36) • LaFerrier, Marc (0023-1-13) (0023-1-48) (0023-2-20) (0023-3-26) (0023-3-27) (0023-3-39) (0023-3-43) (0023-3-59) (0023-3-60) (0023-4-1) (0023-4-11) • Lewis, Mark (0025-2-4) (0025-2-15) (0025-2-17) (0025-3-15) (0025-3-35) (0025-3-36) • McHugh, John (0002-12-4) • Meerbott, Tim (0002-2-3) • Moses, Dorothy (0027-5) • O'Katy, Jessica (0002-8-5) • Payne, Nkenga (0012-10) • Poole, Mary Ann (0018-7) (0018-11) (0018-12) • Reynolds, Laura (0022-1-4) (0022-1-8) (0022-2-19) • Ryan, Megan (0001-19-2) • Schwartz, Matthew (0002-14-14) • Walker, Tom (0002-3-4) (0002-3-6) • White, Barry (0016-9) (0016-11)
Land Use-Site and Vicinity	• Burris, Jessica (0007-2) • Golden, James (0032-21) (0032-24) (0032-33) (0032-37) (0032-38) • Gustave, Unito (0001-26-3) • Hamilton, Karen (0019-4) (0019-12) (0019-13) • Kimball, Dan (0025-3-27) • LaFerrier, Marc (0023-1-30) (0023-3-2) (0023-3-54) • Lewis, Mark (0025-3-27) • Miller, Lloyd (0001-6-7) • Moses, Dorothy (0027-3)

Table D-2. (contd)

Comment Category	Commenter (Comment ID)
	• Mueller, Heinz (0014-12)
Land Use-Transmission Lines	• Cornick, Lance (0001-15-4) • De Villiers, Elena (0031-2) • Flinn, Eugene (0001-22-1) (0001-22-2) (0001-22-3) (0001-22-4) • Garcia, Preston (0008-3) • Golden, James (0032-22) • Hamilton, Karen (0019-5) (0019-7) (0019-9) (0019-10) • Harum-Alvarez, Albert (0001-24-6) • Horton, Richard (0001-25-5) • Kimball, Dan (0025-2-5) (0025-2-7) (0025-2-8) (0025-2-9) (0025-2-10) (0025-3-37) • LaFerrier, Marc (0023-3-19) (0023-3-20) (0023-3-31) (0023-3-37) (0023-3-52) (0023-3-62) (0023-3-63) • Lerner, Cindy (0001-21-1) (0001-21-4) • Lewis, Mark (0025-2-5) (0025-2-7) (0025-2-8) (0025-2-9) (0025-2-10) (0025-3-37) • MacLaren, Kaitlin (0001-7-5) • Meerbott, Tim (0002-2-2) • Miller, Lloyd (0001-6-8) • Reynolds, Laura (0022-1-6) (0022-1-7) (0022-4-5) • Schwartz, Matthew (0002-14-9) • Sorenson, Katy (0002-1-5) • Vrooman, Paul (0001-23-1) (0001-23-2) (0001-23-3) • Wallace, Otis (0001-1-3)
Meteorology and Air Quality	• Kimball, Dan (0025-2-3) (0025-3-25) (0025-3-45) • LaFerrier, Marc (0023-1-16) (0023-1-26) (0023-1-28) (0023-3-16) (0023-4-7) (0023-4-8) • Lewis, Mark (0025-2-3) (0025-3-25) (0025-3-45) • MacLaren, Kaitlin (0001-7-7) • Mueller, Heinz (0014-21) • Reynolds, Laura (0022-2-1) (0022-2-16) (0022-2-18) (0022-4-2) (0022-4-3) (0022-4-4) • White, Barry (0016-2) • Wilansky, Laura (0021-11)
Need for Power	• Eney, Douglas (0002-17-2) • Hancock, Mandy (0001-14-5) • Horton, Richard (0001-25-2) • Johnson, Barry (0001-5-2) • Martinelli, Tom (0001-9-3) • O'Katy, Jessica (0002-8-1) • Reynolds, Laura (0022-1-5) (0022-3-4) (0022-3-5) (0022-3-6) (0022-4-24) • Schwartz, Matthew (0002-14-1) (0002-14-2)

Table D-2. (contd)

Comment Category	Commenter (Comment ID)
	• Snelson, Richard (0002-7-2) • Weins, Brian (0006-5) • Wilansky, Laura (0021-3)
Nonradiological Waste	• LaFerrier, Marc (0023-1-8) (0023-1-60)
Process-ESP-COL	• Kimball, Dan (0025-1-2) (0025-3-20) • LaFerrier, Marc (0023-1-59) (0023-3-42) (0023-3-50) (0023-3-64) (0023-3-66) (0023-4-21) • Lee, Nancy (0001-12-1) • Lewis, Mark (0025-1-2) (0025-3-20) • Miller, Lloyd (0001-6-10) • Mueller, Heinz (0014-3) (0014-4) • Ryan, Megan (0001-19-10) • Singer, Craig (0004-3)
Process-NEPA	• Kimball, Dan (0025-2-19) • Lewis, Mark (0025-2-19)
Related Federal Projects	• Golden, James (0032-1) (0032-15) (0032-18) (0032-20) • Grosso, Richard (0002-6-4) • Kimball, Dan (0025-1-1) (0025-2-14) (0025-2-16) (0025-3-42) (0025-3-44) • LaFerrier, Marc (0023-1-51) (0023-3-3) (0023-3-7) (0023-3-8) (0023-3-9) (0023-3-10) (0023-3-11) (0023-3-12) (0023-3-15) (0023-3-17) (0023-3-21) (0023-3-28) (0023-3-45) (0023-3-46) • Lewis, Mark (0025-1-1) (0025-2-14) (0025-2-16) (0025-3-42) (0025-3-44) • MacLaren, Kaitlin (0001-7-6) • Reynolds, Laura (0022-1-13)
Site Layout and Design	• Amor, Valerie (0001-11-4) • Kimball, Dan (0025-1-3) (0025-3-24) (0025-3-26) • LaFerrier, Marc (0023-1-20) (0023-1-21) (0023-1-23) (0023-1-24) (0023-1-27) (0023-1-43) (0023-1-52) (0023-1-54) (0023-1-55) (0023-1-56) (0023-1-61) (0023-1-65) (0023-1-69) (0023-2-6) (0023-2-18) (0023-2-19) (0023-2-21) (0023-2-22) (0023-2-33) (0023-2-34) (0023-2-35) (0023-2-36) (0023-2-37) (0023-2-38) (0023-2-39) (0023-2-40) (0023-2-41) (0023-3-4) (0023-3-5) (0023-3-6) (0023-3-14) (0023-3-29) (0023-3-30) (0023-3-41) (0023-3-44) (0023-3-57) (0023-3-65) (0023-3-67) (0023-4-2) (0023-4-3) (0023-4-6) (0023-4-12) (0023-4-13) (0023-4-19) • Lewis, Mark (0025-1-3) (0025-3-24) (0025-3-26) • Mueller, Heinz (0014-8) (0014-20) • Poole, Mary Ann (0018-13) (0018-15) • Reynolds, Laura (0022-2-4) (0022-2-5) (0022-2-11) (0022-2-12) (0022-2-14) (0022-2-15) (0022-3-7) (0022-3-10) (0022-3-11) (0022-3-12)

Table D-2. (contd)

Comment Category	Commenter (Comment ID)
	(0022-3-13) (0022-3-14) (0022-3-17) (0022-3-20) (0022-4-1)
Socioeconomics	• Accursio, James (0003-4-4) (0003-4-5) • Alexander, William (0002-10-1) (0002-10-3) (0002-10-4) • Daley, Dennis (0001-20-5) • Diggs, Bill (0001-17-1) (0001-17-2) • Grosso, Richard (0002-6-3) • Hamilton, Karen (0019-1) (0019-2) • Harum-Alvarez, Albert (0001-24-5) • Jacobs, Jeanne (0001-4-2) • Johnson, Barry (0001-5-3) (0001-5-4) • Johnson, Michael (0001-8-3) • Kiley, Mike (0001-3-1) (0002-5-4) • Kimball, Dan (0025-3-38) (0025-3-39) (0025-3-40) (0025-3-46) • LaFerrier, Marc (0023-1-53) (0023-2-2) (0023-2-3) (0023-2-4) (0023-2-23) (0023-2-24) (0023-2-25) (0023-2-26) (0023-2-27) (0023-2-28) (0023-2-29) (0023-3-1) (0023-3-34) (0023-3-36) • Landeta, Hector (0001-18-2) (0001-18-3) (0001-18-5) • Lerner, Cindy (0001-21-7) • Lewis, Mark (0025-3-38) (0025-3-39) (0025-3-40) (0025-3-46) • Marinelli, Francis J. (0001-10-2) • Martinelli, Tom (0001-9-2) (0002-9-3) • McHugh, John (0002-12-5) • Reynolds, Laura (0022-4-16) • Ryan, Megan (0001-19-7) (0001-19-8) • Schwartz, Matthew (0002-14-4) • Shlackman, Mara (0002-16-3) • Simpson, Roce (0002-13-3) (0002-13-4) (0002-13-5) • Snelson, Richard (0002-7-3) (0002-7-4) • Wallace, Otis (0001-1-5)
Uranium Fuel Cycle	• Amor, Valerie (0001-11-5) • Bass, Ken (0005-2) • DiNuzzo, Laura (0028-5) • Guendelsberger, Debra (0029-3) • Hancock, Mandy (0001-14-8) • Harris, Walter (0001-2-4) • Marinelli, Francis J. (0001-10-1) • O'Katy, Jessica (0002-8-2) (0002-8-7) • Payne, Nkenga (0012-13) • Reynolds, Laura (0022-4-13) • Schwartz, Matthew (0002-14-8) (0002-14-13) • Shlackman, Mara (0002-16-5) • Weins, Brian (0006-2) • Wilansky, Laura (0021-10) (0021-21)

Table D-3. Comment Categories in Order as Presented in this Report

D.1.1 Comments Concerning Process – COL
D.1.2 Comments Concerning Process – NEPA
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D.1.1 Comments Concerning Process – COL

Comment: Having these meetings out in one corner of the County is not fair to the rest of the County because this affects the entire County. All our commissioners vote on this and yet, you'll have it in one commission district. It's all our Bay. The water which you are going to bring in to cool the plants is all our water. The power lines are going throughout all our neighborhoods. This is not just a Homestead issue; it's not a local issue; it's a Countywide issue. And I would say it's a regional issue because I think Monroe County should be part of the plan, too. I think there should be meetings held all over the County. The scoping meeting out to Homestead, I had to drive an hour-and-a-half to get here and I'm just on the other side of the County. So the Urban Environment League calls for scoping meetings throughout the County because this empty room should tell you something. (**0001-12-1** [Lee, Nancy])

Response: *Public meetings are generally held in the community located geographically closest to the proposed project location. Interested parties that are unable to attend the public meetings in person are also afforded the opportunity to submit written comments. This comment expresses opposition to the NRC's scoping process, but provides no specific information on the*

NRC's environmental review of the Turkey Point Units 6 and 7 COL application. Therefore, this comment will not be addressed in the environmental impact statement (EIS).

Comment: I just want to make is that I that I think we should be evaluating environmental impacts and safety on the same plane and not rank safety above environmental. Because if you neglect the environmental impacts of building these reactors, you are putting the safety of my generation and the future generation at risk. (**0001-19-10** [Ryan, Megan])

Comment: I have little faith in what might happen here. As you have heard, they have never and can't find any instance in which they have refused a nuclear power plant. They've always managed to find ways to accommodate it. (**0001-6-10** [Miller, Lloyd])

Response: *The NRC takes seriously its responsibility under the Atomic Energy Act to protect the health and safety of the public and the environment in regulating the U.S. nuclear power industry. More information about NRCs roles and responsibilities is available on the NRCs website at* http://www.nrc.gov/about-nrc.html*. NRC approval of an application for a COL is not a foregone conclusion. Environmental issues, as well as safety issues, will be evaluated before a decision on an application is reached. As described in the regulations, the NRC can deny an application based on the finding of its review.*

Comment: In my opinion there should be one universal standard design, agreed upon by a panel of experts, and built to exacting standards so it becomes cheaper and less time consuming. (**0004-3** [Singer, Craig])

Response: *This comment did not provide information related to the environmental effects of the proposed action and will not be addressed in the EIS.*

Comment: The Draft EIS should discuss the status and any issues/concerns associated with the following approvals: Approval of the application to the NRC for a COL; Approval of the application to the State of Florida for site certification; Approval of any required National Pollutant Discharge Elimination Permit(s) (NPDES) for water discharge; Approval of the Prevention of Significant Deterioration (PSD) air permit; Approval of a 316(b) demonstration for the proposed cooling water intake; Approval of the U.S. Army Corps of Engineers (USACE) Section 404 and Section 10 permits to construct structures in wetlands and regulated waterways; Approval of hazardous waste management and disposal plans; Approval of the "determination of consistency" under the requirements of the Coastal Zone Management Act to ensure the expanded plant is consistent with existing federal and state coastal zone management plans. (**0014-4** [Mueller, Heinz])

Comment: Four (4) sixty thousand gallon above ground diesel fuel tanks, four (4) 1300 gallon diesel generator day tank, and two (2) diesel driven fire pumps are mentioned. No details and specification were provided to establish compliance with Chapter 24 and FAC 62-762 or obtain the necessary approval of the Director of DERM or his designee. (**0023-1-59** [LaFerrier, Marc])

Comment: The expiration date on the copies of USFWS permits No. MB697722-0, MB697722-1 and MB1335540-0, included in Appendix 10.2.10 indicate that these permits

expired on March 31, 2009. The applicant shall provide copies of the current permits. (**0023-3-64** [LaFerrier, Marc])

Comment: In Section 5.12, the application states that No variances from applicable regulatory standards are being sought for construction of the Project. In Section 4.5.5, however, the application states that a variance is needed. (**0023-3-66** [LaFerrier, Marc])

Comment: The application states that FPL will prepare and submit an earthwork and materials disposal plan prior to the start of construction. (**0023-4-21** [LaFerrier, Marc])

Comment: The COL application proposes the discharge of cooling tower blowdown from Units 6&7 to underground injection wells within the Boulder Zone of the Lower Floridan Aquifer. FPL makes the assumption that a Class I Underground Injection Control permit will be issued by FDEP. However, a FDEP permit has not been acquired for this action, to date. (**0025-3-20** [Kimball, Dan] [Lewis, Mark])

Response: *An appendix of the EIS will contain a list of environmental-related authorizations, permits, and certifications potentially required by FPL from Federal, State, regional, local, and affected Native American Tribal agencies related to the COLs for proposed Turkey Point Units 6 and 7.*

Comment: DERM has determined that the proposed work or activity may result in adverse environmental impacts as defined in Section 24-5 of the Code of Miami-Dade County. The application does not contain sufficient information to evaluate the project's environmental impacts, benefits, and detriments with regard to assessment points numbers 1 thru 6 as defined in Section 24-5 of the Code of Miami-Dade County under Comprehensive Environmental Impact Statement. (**0023-3-42** [LaFerrier, Marc])

Response: *This comment refers specifically to the Site Certification Application (SCA) submitted to the State of Florida by FPL, but it indicates an interest in the potential impacts of the proposed plant on the environment. The potential impacts of building and operating the proposed plant on the environment will be addressed in Chapters 4, 5, and 7 of the EIS, based on the affected environment described in Chapter 2.*

Comment: Please clarify mitigation success criteria for the proposed mitigation plans. What are the projected goals? What will constitute success? Please include details of the routine monitoring and maintenance plans designed to achieve planned success levels that are required in order to evaluate the adequacy of the proposed mitigation. (**0023-3-50** [LaFerrier, Marc])

Response: *This comment refers to the SCA submitted to the State of Florida by FPL, but it indicates an interest in mitigation of the impacts of proposed Turkey Point Units 6 and 7 on wetlands. The potential impacts of building and operating the proposed plant on wetlands and potential mitigation of those impacts will be discussed in Chapters 4 and 5 of the EIS, based on the affected environment that will be described in Chapter 2. A wetland mitigation plan is included in the Clean Water Act (CWA) Section 404 permit application submitted to the U.S. Army Corps of Engineers (USACE or Corps). Monitoring plans during building and operating the proposed plant will be presented in Chapters 4 and 5.*

Comment: The Draft EIS should discuss any plans by the applicant to seek a Limited Work Authorization (LWA). On similar projects an LWA was sought prior to certain environmental permits being obtained. EPA understands that an LWA could potentially authorize site development and deep/shallow foundation construction. (**0014-3** [Mueller, Heinz])

Comment: The parks encourage the NRC to carefully analyze the activities which would be permitted as Preconstruction Activities and/or Limited Work Authorization Construction. This project is located in a highly sensitive, wetlands coastal environment, immediately adjacent to a national park, and components of the COL are proposed to run through or adjacent to a second national park. This permit evaluation will examine the environmental impacts of roads, bridges, facility location, transmission lines, cooling water pipelines (radial collector wells), and other issues. Although these non-safety related components may frequently be allowed as Preconstruction Activities and/or Limited Work Authorization Construction, the parks believe many of these activities present the potential for cumulative impacts to this sensitive ecosystem and require a greater amount of environmental review than the LW A process provides. (**0025-1-2** [Kimball, Dan] [Lewis, Mark])

Response: *Cumulative impacts are the impacts that result from the combination of the proposed action and past, present, and reasonably foreseeable actions, regardless of who takes the actions. The cumulative impacts associated with building and operating proposed Units 6 and 7, including those actions identified as preconstruction, will be evaluated for each affected resource. The results of cumulative impact analyses will be presented in Chapter 7 of the EIS. FPL withdrew its request for a limited work authorization (LWA) in a letter to the NRC dated November 10, 2009.*

D.1.2 Comments Concerning Process – NEPA

Comment: NPS urges a comprehensive evaluation, additional documentation, and consultation with respect to potential impacts of the Turkey Point 6 & 7 Project and other power plant and transmission corridor site alternatives. NPS concerns should be addressed in the EIS process in order to avoid and minimize potential adverse impacts to the resources and values of Biscayne and Everglades National Parks and conflicts with CERP goals and projects. (**0025-2-19** [Kimball, Dan] [Lewis, Mark])

Response: *The potential impacts of building and operating the proposed units at the alternative sites will be discussed in Chapter 9 of the EIS. The alternative sites will be compared against the proposed site to determine whether any of the alternative sites are environmentally preferable to the proposed site. The environmental impacts of building and operating the proposed transmissions lines will be addressed in Chapters 4, 5 and 7. Alternative transmission corridors would not typically be considered within the context of an NRC EIS for a proposed nuclear power plant. However, the Corps of Engineers, and perhaps the National Park Service, will be cooperating with the NRC on the EIS. To the extent that a cooperating agency addresses such alternatives for its NEPA analysis, those alternatives would likely be included in this EIS in order to support the cooperating agency's environmental review.*

D.1.3 Comments Concerning Site Layout and Design

Comment: We also know through many studies by scientists that the sea level waters are rising and that I have been told through a presentation through an environmental group that I'm a part of and on committees with different towns -- I'm on a lot of different groups -- that they're going to raise their plant, I thought it was 28 feet; Lloyd said 24. The reality is they know that it's a problem. (**0001-11-4** [Amor, Valerie])

Comment: Please publish a map showing new and existing canals, pipelines, STAs, pump locations, and pump capacities associated with the water management feature(s). (**0022-3-10** [Reynolds, Laura])

Comment: Please state the specific material that will be used to line the water management feature(s) and state the minimum thickness of the lining. (**0022-3-11** [Reynolds, Laura])

Comment: Please state whether the lining of the water management feature(s) will be impervious to the flow of groundwater. (**0022-3-12** [Reynolds, Laura])

Comment: Please state how the lining of the water management feature(s) will be stabilized knowing that groundwater continually flows through the Biscayne Aquifer. (**0022-3-13** [Reynolds, Laura])

Comment: Please state the number of times the water management feature(s) can be drained and refilled while retaining its structural integrity. (**0022-3-14** [Reynolds, Laura])

Comment: Please state how long the applicant plans to own and operate the water management feature(s). (**0022-3-17** [Reynolds, Laura])

Comment: Please state the dimensions, capacities, and location(s) of the water management feature(s) resulting from excavations of the FPL-Owned fill source (rockmines). (**0022-3-7** [Reynolds, Laura])

Comment: Provide a process flow with description of the proposed FPL reclaim treatment plant & plant effluent. (**0023-1-27** [LaFerrier, Marc])

Comment: [P]lease provide a detailed map of all FPL land holdings within the Biscayne Coastal Wetlands and Model Lands Basins. Please identify on the map which areas are proposed for development and which are proposed for mitigation. (**0023-4-3** [LaFerrier, Marc])

Comment: If the water reservoir for Units 6&7 is unlined, the seepage of wastewater constituents, including EPOCs, will occur to the Biscayne Aquifer and cause uptake to adjacent wetlands; migration of these contaminants will be transported subsequently to the bay. The ecological impacts associated with an unlined reservoir should be evaluated. (**0025-3-26** [Kimball, Dan] [Lewis, Mark])

Response: *A description of the FPL site layout, the reactor type, and the cooling-water systems for proposed Turkey Point Units 6 and 7 will be provided in Chapter 3 of the EIS. Offsite features associated with the proposed units will also be described in Chapter 3.*

Comment: Please provide plans for the handling and disposal of the spoils generated from demucking of the Units 6 & 7 site. (**0023-1-20** [LaFerrier, Marc])

Comment: Please submit evaluation criteria for non-acceptable vs. acceptable material that would be used for common or structural backfill and demonstrate how the criteria for material that would be used for common or structural backfill meet the clean fill requirements of Section 24-48, Miami-Dade Code. (**0023-1-21** [LaFerrier, Marc])

Comment: Please identify temporary vs. permanent impacts expected to result from the proposed work within the barge unloading area, and provide a detailed description of these impacts. (**0023-1-23** [LaFerrier, Marc])

Comment: The application did not provide sufficient information to fully evaluate work proposed in the barge area. Please submit detailed plans, including but not limited to applicable site surveys, site plan and cross sectional views with mean high water and mean low water lines, existing depth and proposed resulting depth of the turning basin, details of any proposed alteration of the existing shoreline inclusive of complete designs for creating any vessel notches or bays, as well as detailed stabilization methodology for any portion of the shoreline that is to be modified as a result of the proposed expansion of the Barge Turning Basin. (**0023-1-24** [LaFerrier, Marc])

Comment: [I]nclude sufficient information for the radial collection wells, specifically the spacing between the well screen laterals and the maximum distance that the well screen laterals will extend under Biscayne Bay. Please .... show the boundaries of sovereign submerged lands and the extent to which the radial collection wells would be located within sovereign submerged lands. (**0023-1-43** [LaFerrier, Marc])

Comment: Pipe installation and canal crossing details were not provided. (**0023-1-54** [LaFerrier, Marc])

Comment: Table 4.5-1 (Stream Number 36) lists the reclaimed water volume to FPL as 72.7 MGD (50,481 gpm) and Appendix 10.9, Section 2.0 states Turkey Point Units 6 & 7 will require 55.3 million gallons per day (MGD) if supplied from reclaimed water. The discrepancy in the reclaimed water volume is not addressed. (**0023-1-65** [LaFerrier, Marc])

Comment: The quantity of fill needed for Unit 6&7 and associated facility construction, the quantity of fill to be extracted at this site, the dimensions of the rock pit. Commitment approved by MDC CAO that no fill will be sold. (**0023-3-4** [LaFerrier, Marc])

Comment: Geologic cross section of the proposed excavation (including the amount of water storage above- and below-ground, detailed information on the depth of the area to be mined) (**0023-3-6** [LaFerrier, Marc])

Comment: The application states that muck removed from several construction sites will be stored in the spoil disposal site. (**0023-4-13** [LaFerrier, Marc])

Comment: Application does not provide information on demolition or renovation that may occur as part of this project. (**0023-4-6** [LaFerrier, Marc])

Response: *These comments refer specifically to the SCA submitted to the State of Florida by FPL, but they indicate an interest in the activities that will occur to build proposed Turkey Point Units 6 and 7. Chapter 3 of the EIS will describe the activities that will be taken to build the proposed units. The review team will assess the potential impacts of building the proposed units in Chapter 4 of the EIS.*

Comment: Are there any roads, whether for plant access or associated with the transmission lines that are being proposed as temporary roads? If so, please identify them and provide a map of their locations. (**0023-1-52** [LaFerrier, Marc])

Comment: No data is provided indicating which roads are temporary, which roads are to be left as-built, and which roads are to be reduced after construction of power generation units and supporting facilities. (**0023-2-22** [LaFerrier, Marc])

Comment: The application does not adequately depict property ownership in areas surrounding proposed linear features such as access roads, including Miami-Dade County Environmentally Endangered Lands (EEL) Program projects that have been at least partially acquired. (**0023-2-6** [LaFerrier, Marc])

Comment: Information including but not limited to depth, slope, deep cut lines, levee height, etc. for the water management feature and rock mining activities proposed for the FPL owned fill source are not provided in the application. (**0023-3-14** [LaFerrier, Marc])

Comment: No sketches are provided clearly denoting if rights-of-way shown are FPL right-of-way, road right-of-way or other right-of-way. (**0023-3-29** [LaFerrier, Marc])

Comment: No data is provided describing the existing available right-of-way and ownership thereof. Provide clear maps denoting the aforementioned. (**0023-3-30** [LaFerrier, Marc])

Comment: The applicant shall provide detailed information on the elevation of all project features that is sufficient to determine whether this requirement has been met. (**0023-3-44** [LaFerrier, Marc])

Comment: Detailed information on the proposed excavation including the exact proposed location not provided. (**0023-3-5** [LaFerrier, Marc])

Comment: The application does not provide sufficient information to determine whether all construction operations involving earthwork, including disposal, are limited to clean fill. (**0023-4-12** [LaFerrier, Marc])

Response: *These comments refer specifically to the SCA submitted to the State of Florida by FPL, but they indicate an interest in the layout of the proposed plant. The layout of features associated with proposed Turkey Point Units 6 and 7 will be described in Chapter 3 of the EIS. The review team will assess the potential impacts of building the proposed units in Chapter 4.*

Comment: The project's draft PSD permit incorporates the use of reclaimed water as the primary source of cooling water for the cooling towers as well as the use of salt water from radial collector wells as a backup source or some combination of the two as necessary. As

presented in the PSD emissions calculations, particulate emissions are highly dependent on the source of the cooling water. The Draft EIS should discuss: impacts related to particulate emissions with respect to the-source of the cooling water; anticipated availability of reclaimed water to support the new units in addition to existing units; recordkeeping and monitoring plans to assess water flow rates and the ratio of reclaimed to salt water used; and any salinity changes outside of the range used for the emissions calculations. (**0014-20** [Mueller, Heinz])

Comment: As mentioned previously, FPL apparently proposes that Units 6 and 7 will have their cooling water needs provided by cooling towers as opposed to the existing canal system. The Draft EIS should discuss the wastewater-to-reclaimed water process, including describing the processes to remove debris, sand, sediment, and other large solids. The Draft EIS should discuss use of any microorganisms to break down organic materials, proposed clarifiers to remove microorganisms and remaining solids, filtering processes, and what type of disinfection (chlorine?) will be used to kill microorganisms. The monitoring of the re-use facilities and processes should be discussed in order that only high-quality reclaimed water is distributed and that it is clear and free of pathogens. (**0014-8** [Mueller, Heinz])

Comment: Please provide a schedule of radial collector well operation including initial operation and all planned subsequent events, as well as monitoring protocol for the above-mentioned resources. (**0018-15** [Poole, Mary Ann])

Comment: Please state the maximum pressure the deep well injection pumps will generate. Please state the maximum water temperatures of the wastes that will be deep well injected. (**0022-2-11** [Reynolds, Laura])

Comment: Please state the affects of the geologic fracturing that will occur as a result of pressure, temperature, exotic chemicals, and oxygen from deep well injections. (**0022-2-12** [Reynolds, Laura])

Comment: Please state the amount of heat that will be discharged into the atmosphere from units 6&7 and state the temperature differential between the discharged heat and the ambient temperature. Please state the amount of water vapor that will be discharged into the atmosphere from units 6&7 and state the moisture differential between the discharged water vapor and the ambient humidity. (**0022-2-15** [Reynolds, Laura])

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to varieties and concentrations of pathogenic waste, toxic waste, EPOCs, chemical waste, and radioactive waste that will be disposed by deep well injection, please provide them. (**0022-2-4** [Reynolds, Laura])

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to the ultimate location(s) of the deep well injected wastes, please provide them. (**0022-2-5** [Reynolds, Laura])

Comment: Please state, specifically, which wastewater batches will be deep well injected and which wastewater batches will be released into the unlined cooling canal system for both construction activities and normal operation activities. (**0022-3-20** [Reynolds, Laura])

Comment: Please state, specifically, all additives and all additive quantities, injected into the cooling water, such as solvents, detergents, biocides, corrosion inhibitors, lubricants, scale inhibitors, oxygen removing agents, foam removing agents, salts, and any other chemicals. (**0022-4-1** [Reynolds, Laura])

Comment: Pretreatment of the wastewater reuse source water to include treatment of EPOCs should be evaluated, considering Biscayne National Park's status as an Outstanding Florida Water Body with a no degradation standard under Florida Statutes. (**0025-3-24** [Kimball, Dan] [Lewis, Mark])

Response: *The proposed design for Turkey Point Units 6 and 7, including cooling tower and injection well performance, will be addressed in Chapter 3 of the EIS. The review team will assess the potential impacts of operating the proposed plant in Chapter 5, based on the affected environment described in Chapter 2. The EIS will include citations for documents used in its preparation.*

Comment: Based on the review of the Environmental Report, Part 3, submitted as pat1 of the Nuclear Regulatory Commission (NRC) Combined Operating License (COL), several inconsistencies have been noted when compared to the State of Florida Site Certification Application (SCA). The COL and the State of Florida SCA should contain the same design specifications and construction elements. For example, the FPL-owned fill source (rock mine) has been removed from the State of Florida SCA and the Army Corps of Engineers permit application. Without the Florida and ACOE permit approvals, the excavation cannot proceed. (**0025-1-3** [Kimball, Dan] [Lewis, Mark])

Response: *The NRC process is to review the license application and prepare an EIS based on the actions proposed in that application. Information to be used during the review will include documents obtained from State and Federal agencies, including the SCA, to the extent necessary to characterize the Turkey Point site. The FPL-owned fill source remains in the COL application at this time and a review of the environmental impacts of obtaining fill material will be presented in Chapter 4 of the EIS.*

Comment: Not enough information provided to assess water supply alternatives. Appendix 10.9 is a summary of alternative water supply study conducted by FPL. MDWASD has not received the reports cited in the Appendix (Analysis of Baseline Water Source, HDR Dec. 2007; Task 1 Initial Water Source Alternative Screening, HDR March 2008; Task 2 and 3 Water Source Alternative Characterization and Scope, HDR March 2008; Conceptual Engineering of Cooling Water supply and Disposal for Turkey Point Units 6 & 7, HDR, June 2008; Cooling Water Supply and Disposal Conceptual Design Report, HDR, March 2009). (**0023-1-56** [LaFerrier, Marc])

Comment: Condition 5 of Z-56-07 requires FPL to provide an alternative water source plan that will outline all sources of water not supplied by WASD through reuse. (**0023-3-41** [LaFerrier, Marc])

Comment: Please provide additional information on the quality, quantity, timing and reliability of the proposed reclaimed water for hydrologic improvements. (**0023-4-2** [LaFerrier, Marc])

Response: *These comments are directed at the applicant and refer specifically to the SCA submitted to the State of Florida by FPL, but they indicate an interest in the cooling water supply for the proposed units. The cooling-water source for proposed Turkey Point Units 6 and 7 will be described in Chapter 3 of the EIS. Alternative water supplies will be considered in Chapter 9.*

Comment: Most of the lands adjacent to the proposed roadway segment improvements occur within the boundaries of the Biscayne Bay Coastal Wetlands CERP Project, and several segments would be located where this CERP project proposes infrastructure for restoration of the surrounding wetlands and Biscayne Bay. These road improvements would directly interfere with CERP features associated with the Biscayne Bay Coastal Wetlands Project, including pumps and spreader canals. (**0023-2-18** [LaFerrier, Marc])

Comment: Please address how the proposed roadway features would be constructed to be consistent with the proposed CERP features. (**0023-2-19** [LaFerrier, Marc])

Comment: The applicant must provide a detailed map identifying areas where roads or road improvements would not be completely contained within the boundaries of either FPL-owned land or an existing public right-of-way. The applicant must also identify adjacent property owners whose land may need to be obtained to accommodate the road or road improvements, including but not limited to the Miami-Dade Environmentally Endangered Lands Program, and explain the process by which the additional property will be obtained. (**0023-2-21** [LaFerrier, Marc])

Response: *These comments refer specifically to the SCA submitted to the State of Florida by FPL, but they indicate an interest in the proposed road improvements associated with building and operating Turkey Point Units 6 and 7. The EIS will describe the proposed road improvements in Chapter 3 of the EIS. The impacts of these road improvements will be presented in Chapters 4 and 5. The cumulative impacts of road improvements and CERP actions will be presented in Chapter 7 of the EIS.*

Comment: Please state the locations and extents of permitted ASR wells sites within 25 miles of units 6&7. Please state the capacity of each of the permitted ASR well sites within 25 miles of units 6&7. (**0022-2-14** [Reynolds, Laura])

Response: *The cumulative impact of the operation of proposed Turkey Point Units 6 and 7 and existing facilities that impact groundwater, such as the aquifer storage and recovery wells located in the vicinity of the Turkey Point site, will be addressed in Chapter 7 of the EIS.*

Comment: Flow rate used to calculate water demands on Table 4.5-1 not provided. Not clear on how water demands for potable water use were calculated. (**0023-1-55** [LaFerrier, Marc])

Comment: No information was provided to show that the facility will be in compliance with the Flood Plain Management requirements including flood proofing as may be required. Please explain why existing runoff from pre-development conditions results in more runoff volume than

post development conditions, despite the fact that the pre-development plant site is mostly undeveloped and should have no runoff volume to be pre-treated. (**0023-1-61** [LaFerrier, Marc])

Comment: Details for road improvements list"...NHW Elevation to be provided by DERM. Please provide further explanation as to what is expected. (**0023-1-69** [LaFerrier, Marc])

Comment: Pursuant to Condition 9 of Z-56-07, Planned restoration features such as, but not limited to, pump PU-M3 (BBCW proposed project feature] and downstream hydrologic restoration shall not be compromised or constrained by the roadway(s). The application does not contain sufficient information to determine whether the requirements of Condition 9 of Z-56-07 have been met. (**0023-2-33** [LaFerrier, Marc])

Comment: Pursuant to Condition 9 of Z-56-07, Sheet flow shall be maintained across roadway alignments by elevating portions of the roadway and through the installation of culverts in other areas. The application does not contain sufficient information to determine whether the requirements of Condition 9 of Z-56-07 have been met. (**0023-2-34** [LaFerrier, Marc])

Comment: Roads are to be constructed to comply with Flood Criteria requirements, at a minimum. Assess impact on a larger study area. (**0023-2-35** [LaFerrier, Marc])

Comment: No data is provided describing the existing available right-of-way and ownership thereof. Provide clear maps denoting the aforementioned. Clearly denote which roadways are to be public and which are to be private. Provide clear maps denoting the aforementioned. All roads to be dedicated as public right-of-way (arterials-section lines and half-section lines) should include the following: dedication of the zoned right-of-way for future widening and no easements within said right-of-way. Any utilities within the right-of-way will be allowed to be installed by permit only. No sketches are provided clearly denoting if right-of-way shown are FPL right-of-way, road right-of-way or other right-of-way. (**0023-2-36** [LaFerrier, Marc])

Comment: The traffic studies provided in Appendices 1 0.7.4.1 and 1 0.7.4.2 do not demonstrate the need for construction vehicle traffic access to the power plant site from SW 359 Street. (**0023-2-37** [LaFerrier, Marc])

Comment: [T]he traffic studies presented in Appendices 10.7.4.1 and 10.7.4.2 do not provide sufficient data to demonstrate the need for the proposed roadway improvements. (**0023-2-38** [LaFerrier, Marc])

Comment: Assumptions: Substantiate the following assumptions: maximum work-force of 3,650 construction workers and vehicle occupancy of 1.0 worker per vehicle. Study Area. Given the amount of vehicular traffic likely to be generated, the number of employees and the size of project, the study area to be analyzed shall include all roadway facilities where traffic generated by the proposed project is equal to or greater than five (5) percent of the maximum service volume at the adopted level of service standard applicable to the roadway facility. Trip Generation. Given the unique characteristics of the use proposed, the trip generation shall include the following information: average daily, AM peak hour and PM peak hour. Consider car pooling, van pooling or employer-based car pooling. Analysis Period. Consider three analysis periods: Short-term (Concurrency Analysis for 3 years; construction is estimated to begin in

2011); and long-term (Years 2016 and 2020). Peak construction employment for the project is estimated for 2016; Project construction is estimated to conclude in 2020. Trip Distribution. For the Concurrency Analysis use the Cardinal Directional Trip Distribution from Zone 1401 and Year 2015, and the computerized travel demand forecasting (FSUTMS) model, refined where needed, for Years 2016 and 2020. (**0023-2-39** [LaFerrier, Marc])

Comment: Future Conditions Analyses. Perform an assessment of future conditions on the study area roadways for the long-term planning horizons without the impacts of the application-generated traffic; perform other assessment of future conditions on study area roadway and intersections with the impacts of the application-generated traffic. Incorporate programmed and planned roadway improvements consistent with Adopted Plans and Programs above. Mitigation Analysis. If the application causes the study area roadways to fall below their adopted LOS standards, recommend mitigation through physical or operational improvements, travel demand management strategies, fair-share contributions, or a combination of these or other strategies. (**0023-2-40** [LaFerrier, Marc])

Comment: Provide detailed supporting documents for trip generation of 3,650 construction peak period employees. Document all the growth rates and estimate growth factors values for different analysis years. Since there are different peak hours for construction (5:00 AM to 6:00 AM) and regular employees arrival (6:00 AM to 7.00 AM), traffic volumes for these two hours should not be combined in the analysis. Future roadway improvements in TIP, LRTP and Comprehensive Plans of effected jurisdictions should be investigated and listed in the report. Potential improvements may include bike trails, greenways and roadways etc. Potential improvements such as bike trails, greenways and roadway improvements, etc. Provide detailed supporting documents for trip generation of 36 construction-related trucks per hour. The existing truck volumes should also be included in the traffic data collection. This data can provide more accurate operational analysis as well as pavement design. To ease the review process, please provide traffic counts in the form of maps. Provide detailed supporting documents for trip generation of 806 and 2000 employees in normal traffic operational analysis for Scenario 1 and 2, respectively. Presence of only 940 employees during data collection period while 1,467 employees work. Therefore, trips should be adjusted, or it should be documented that only 940 employees are usually present. Please note that traffic data should be adjusted for all types of seasonal variations. (**0023-2-41** [LaFerrier, Marc])

Comment: Parking demand and supply analysis should be included in the report. Regional traffic impact analysis should also be conducted because of the anticipated high peak-hour volumes generated during peak periods. Different access routes should be explored to the site, such as through SW 328 Street. (**0023-3-57** [LaFerrier, Marc])

Comment: Pursuant to Condition 21 of Z-56-07, FPL has agreed to allow water level increases on the project site on the order of one foot or more, pursuant to regional restoration projects, and will design the project to accommodate these water level increases at FPL's expense. Information in the application is not sufficient to determine whether the requirements of this condition have been met. (**0023-3-65** [LaFerrier, Marc])

Comment: Further elaboration is needed on item 49 on Table 4.5-1 and noted in Figure 4.5-1 (Effluent from FPL Reclaimed TP to Future FPL Users = 9,739 gallons per minute). (**0023-3-67** [LaFerrier, Marc])

Comment: Please submit the earthwork and materials disposal plan required under Condition 7 of Z-56-07. The plan should include, but not be limited to plans and sketches pertaining to the proposed Spoil Areas including elevation details and slope stabilization. The applicant should also provide the management plan for listed species required under Condition 2 of Z-56-07, which should include but not be limited to identifying the plans established to protect endangered or threatened species from impacts resulting from the proposed work. (**0023-4-19** [LaFerrier, Marc])

Response: *These comments are directed at the applicant and refer specifically to the SCA submitted to the State of Florida by FPL, but they indicate an interest in site layout and design. The review team will describe the layout of proposed Turkey Point Units 6 and 7 and support features in Chapter 3 of the EIS. The potential impacts of building the proposed units will be presented in Chapter 4, and the potential impacts of operating the proposed units in Chapter 5.*

Comment: Under what circumstances would the radial collector wells be required to be used and at what capacities? Under what specific anticipated circumstance would radial collector wells constitute 100% of water source composition? (**0018-13** [Poole, Mary Ann])

Response: *The proposed cooling-water source for proposed Turkey Point Units 6 and 7, including operational information provided by FPL, will be described in Chapter 3 of the EIS.*

D.1.4 Comments Concerning Land Use – Site and Vicinity

Comment: The Miami-Dade Board of County Commissioners, where Dennis C. Moss sits as the Chairman, recently approved a land use change in order to accommodate the expansion plan, which is the subject of the request that is before you today. (**0001-26-3** [Gustave, Unito])

Comment: The proposed expansion by Florida Power & Light involves the land use of 38,607 acres composed of wetlands, agricultural land, barren land, and water. Less than 5% of the proposed expansion involves the use of pre-established urban or built up land [1]. (**0007-2** [Burris, Jessica])

Comment: The project should be consistent with the Goal, Objectives, and Policies of the Miami-Dade County Master Development Comprehensive Plan and its corresponding land development regulations. It is important for the applicant to coordinate permits with all governments of jurisdiction. (**0019-12** [Hamilton, Karen])

Comment: Council staff recommends that the Goals and Policies of the Strategic Regional Policy Plan for South Florida (SRPP) related to protecting and enhancing South Florida's natural resources should be observed (**0019-13** [Hamilton, Karen])

Comment: Consider the full the impacts of construction of the plant, and related facilities as they relate to rights-of way issues, relocation of facilities and infrastructure, and provide the appropriate mitigation strategies. (**0019-4** [Hamilton, Karen])

Comment: The plant site is located in Environmental Protection Subarea F, and is consistent only if the use is deemed consistent with the goals, objectives and policies of the Comprehensive Development Master Plan (CDMP). (**0023-1-30** [LaFerrier, Marc])

Comment: Potential viewshed impacts may increase over current levels in Biscayne National Park from the construction of Units 6&7 and non-transmission facilities. This will impact visitor use and experience within the park and should be evaluated. (**0025-3-27** [Kimball, Dan] [Lewis, Mark])

Comment: The scope of this project (adding two new reactors) is extraordinarily large. It will more than double the size of the existing plant. It requires changes in land use designations, unbelievable amounts of fill, building heavy duty roads, modifying shorelines, destroying wetlands and hammocks, digging a very large hole in South Dade for fill, (not to be restored), digging radial and injection wells, installing a wastewater treatment plant, installing a water treatment plant, installing miles of transmission lines, installing miles of pipelines, changing the horizon, and in effect building a small industrial city, yet FPL insists in their license application that this project in its entirety will have small to no impact. Amazing. Of course there will be an environmental impact and a big one. (**0027-3** [Moses, Dorothy])

Comment: Identify specific measures that will be adopted to protect the environmentally sensitive lands south of Palm Drive (S.W. 3 4 4th Street) from illegal access and activities such as dumping, use of all-terrain vehicles, and poaching. The new roadways proposed south of Palm Drive will increase opportunities for illegal access to environmentally sensitive lands, including those in the Model Lands Basin area. (**0032-38** [Golden, James])

Response: *Land-use impacts of building and operating proposed Turkey Point Units 6 and 7 and associated offsite facilities and transmission lines will be presented in Chapters 4 and 5 of the EIS, and cumulative land-use impacts will be presented in Chapter 7. The analysis of land-use impacts will address the general consistency of the proposed new facilities with applicable zoning regulations and land-use plans. Many of the land-use issues raised in this set of comments overlap with ecological issues, which will also be addressed in Chapters 4, 5, and 7.*

Comment: The SFWMD recommends that the following issues be addressed in the Environmental Impact Statement: Electrical Transmission Lines - The potential for adverse impacts to the SFWMD's L-30 and L-31N Canal levees, which are located within the West Preferred Corridor. FPL is proposing use the existing access roads on the canal levees for construction and maintenance purposes; however, portions of the levees have not been designed to accommodate the heavy equipment proposed to be used by FPL; therefore, the levees will need to be enhanced and widened. The SFWMD advised FPL that any proposed levee enhancements will need to meet USACE design specifications, compaction, and side slope stabilization (grass/sod) requirements. (**0032-21** [Golden, James])

Comment: The SFWMD recommends that the following issues be addressed in the Environmental Impact Statement: Electrical Transmission Lines - The potential for adverse impacts to wetlands that are part of northeastern Shark River Slough, within the boundaries of Everglades National Park, and wetlands within Water Conservation Area 3B, associated with the West Secondary Corridor. Both of these areas are part of the Everglades Protection Area

as defined in the Everglades Forever Act and are targets for restoration under CERP. FPL has not provided adequate information on potential impacts from the construction, operation, and maintenance of the proposed transmission lines and related access (fill) roads through these areas. Currently, there are no existing access roads in this area other than the L-30 and L-31 N levee roads. New road construction would result in long-term impacts to wetland habitat, disrupt existing hydrologic flows, and impact water quality. New road construction would potentially conflict with future CERP project restoration efforts related to the relocation of the S-356 pump station and the promotion of wetland sheet flow. Vehicles (other than airboats) moving over the wetlands (without roads) would also result in major disturbance to existing wetlands by compacting soils, disrupting existing hydrologic flows, and impacting habitat for listed species. (**0032-24** [Golden, James])

Response: *Environmental impacts associated with planned new transmission corridors, as well as potential impacts associated with upgrades to the existing lines, if required, will be addressed in Chapters 4, 5, and 7 of the EIS. The analysis will consider possible effects on canals, levees, and other existing facilities in the affected areas as well as planned future Everglades' restoration projects.*

Comment: Then there's a plan to put those two nukes on a pile of dirt 24 feet high, about 10 million cubic yards. The bulk of this would come from a piece of property that FPL owns back from the edge of the Bay. That will take a very large hole, very deep.
(**0001-6-7** [Miller, Lloyd])

Comment: The Draft EIS should discuss sources of limestone rock proposed for use in the construction of Units 6 and 7. Any impacts from required mining should be discussed, particularly the impacts on Biscayne National Park or U.S. Air Force lands.
(**0014-12** [Mueller, Heinz])

Comment: The allowance of rock mining in agricultural areas is subject to approval of an amendment to the Comprehensive Development Master Plan. FPL has filed an amendment; however no action will be taken by local government until October 2009. Approval of this amendment is subject to extensive informational requests which have not been provided through this application. Therefore land use/zoning consistency cannot be determined at this time. (**0023-3-2** [LaFerrier, Marc])

Response: *The impacts of the proposed offsite fill-source operation as a part of building proposed Turkey Point Units 6 and 7 will be considered in Chapters 4 and 7 of the EIS. The analysis of land-use impacts in Chapters 4 and 7 will address the general consistency of the proposed fill-source operation with applicable land use plans and regulations.*

Comment: Please verify whether all proposed road construction, including stabilization slopes, will fall within the road ROW's. How will proposed impacts, either direct or secondary, adjacent to private property and areas held under conservation easement be addressed?
(**0023-3-54** [LaFerrier, Marc])

Response: *Environmental impacts associated with planned new roadways, as well as potential impacts associated with upgrades to the existing roadways, if required, will be addressed in Chapters 4, 5, and 7 of the EIS.*

Comment: Indicate which roadway improvements will be temporary and which will be permanent and specify the time-frames when each temporary roadway improvement will be restored to its previous, or better, condition. Although the applicant, FPL, indicates that all of the roadway improvements will be temporary, the County's Supplement to the Initial Recommendations Report for Application 6 states, "The [Miami-Dade County Planning] Department favors the dedication of the proposed roadway improvements as permanent facilities". Without clear identification of temporary and permanent roadway improvements, the District cannot identify all potential impacts. (**0032-33** [Golden, James])

Comment: Include the additional roadway improvements proposed under the Additional Access Option in the plan. The plan only addresses the roadway improvements proposed by FPL. It should be modified to include the additional roadway improvements under consideration that are referred to in the County's Supplement to the Initial Recommendations Report as the Additional Access Option. (**0032-37** [Golden, James])

Response: *Potential impacts associated with roadways will be addressed in Chapters 4, 5, and 7 of the EIS. The analysis will distinguish temporary from permanent roadway improvements. The review team does not advise the applicant on alternative roadway improvement plans; these decisions are made by the applicant and State regulatory bodies. Therefore, the choice of roadway improvements will not be addressed in the EIS.*

D.1.5 Comments Concerning Land Use – Transmission Lines

Comment: I'm mindful of the concern of many of my fellow cities north of us with the transmission line issue. Those issues do not pertain to the City of Florida City at all. However, I believe that it's good for us to understand, and I believe this is the fact, that with regard to transmission lines, it doesn't matter what kind of power source we eventually construct at the Turkey Point site. If we construct fossil fuel plants, a fossil fuel plant, that power will still have to be transmitted. Hence, the transmission lines will be necessary no matter the type of generation system we have there. So the transmission line issue is not a child of the nuclear reactor request. And I think we are going to have to figure out a way to take care of transmission regardless of the power source. (**0001-1-3** [Wallace, Otis])

Comment: Lastly, the plan calls for nearly 90 miles of new transmission corridors. NPCA is particularly opposed to the western corridor proposal which calls for the construction of more than 50 miles of power lines either within or adjacent to Everglades National Park. FP&L hasn't given any alternative plans that are acceptable with respect to the placement of these power lines, which are bad for migratory birds, parklands, and wetlands alike.
(**0001-15-4** [Cornick, Lance])

Comment: The impact that we are most immediately dealing with is the Florida Power & Light's transmission line process that they have undertaken from -- as a result of the Florida statutory framework. We are participating within that administrative hearing. And as a result of the

environmental study indicating that you are also going to be looking at that as an indicator, we will be giving you some very specific information about the incompatibility and very adverse impact of the proposed alternate corridor along US-1. We have a process that we are a part of where we will be submitting an alternate corridor outside of the US-1 corridor for the siting of the transmission lines. (**0001-21-1** [Lerner, Cindy])

Comment: In addition, the US-1 corridor, as I said, is our only commercial area. And we are working towards plans -- you'll hear from my colleagues about the plans they have already implemented for the ability to take the US-1 corridor, which is our major transit, transportation, and commercial corridor, and over the course, the vision for Miami-Dade County for the future of the US-1 corridor is to create the opportunity for in-fill by having mixed use development along that corridor, encouraging people to move along the corridor and use the transit that is there as opposed to going out and having the sprawl that we are all fighting against. And preserving the urban development boundaries would require that we focus on mixed use development along US-1. Placing the power lines along that US-1 corridor would absolutely not only inhibit, it would destroy any commercial interest or developer in coming along and complying with that. (**0001-21-4** [Lerner, Cindy])

Comment: We're here to talk jobs. Just as the discussion is jobs in regards to the nuclear power plant such as with the siting lines, we're here to present a pro-business, a pro-job argument for why we need the least intrusive siting of these lines. Now, to a large degree we've been powerless in this regard because with the state statutes that govern siting, there's really no discretion that has been allowed within the different municipalities. In essence, we've been preempted and it's a state matter that will eventually go before the Cabinet if we get in front of the Administrative Law Judge. For the record, what I would like to bring and present to you on DVD's are the legislative actions that the various three municipalities have taken in regards to the US-1 Business District and the transmission sitings. And what these are are the resolutions as well as some of the charrette plans and the other actions that we've taken. Now, I would like to make that part of the record on behalf of the Village of Palmetto Bay, the town of Cutler Bay, and the Village of Pinecrest. (**0001-22-1** [Flinn, Eugene])

Comment: Why that's important -- and Mayor Vrooman will discuss in more detail those charrettes that he's been involved in, that we've been involved in in regards through Chambers South, a very important community partner, and the different cities, is one of the first things the Village of Palmetto Bay did in incorporating in 2002, was to attempt to put a rudder on an otherwise local economic area that was adrift. And we are attempting to bring jobs; we are attempting to bring sustainable development. And we believe that the record evidence from an economist and from our engineers, who is going to show that these siting lines have a severe risk in actually forcing sprawl. Why is that? Because they're going to render commercially useless some areas where significant work was done. What I would like to show as our first board here, is this is the Franjo Triangle Commercial Island charrette. And it is a wonderful vision for the community. And I think if you will take a look at this, this is primarily an economic center. It is a mixed use; it does include residential. But you're going to have quite a few jobs, small businesses, which is a huge component of our Miami-Dade County economy here. These lands will be rendered, from some of the information we've received, will be severely impacted by the siting of these lines basically going through them. These lines are incompatible. From what we've seen, these lines are more appropriate what you would see driving down Krome

Avenue and those areas that weren't seen fit to put through the areas 30 years ago, they're less fit to put through here now. (**0001-22-2** [Flinn, Eugene])

Comment: We are attempting to work with FP&L. It is an adversarial proceeding but we're attempting to work together. We have just passed resolutions, Pinecrest and Palmetto Bay, in regards to engaging an engineer to get us to the first section of this process and have our input. Because we believe there are better locations for these lines without adversely affecting the hard work that's been going on. You have three municipalities here that have done outstanding work since they're been incorporated. And Paul Vrooman, I don't -- maybe I should just yield the floor to you at this point. But our position at this time is that they are incompatible with the area. They could be rendered more compatible if we undergrounded them, which we understand the issues on that. But we're not sure we're getting the feedback or the recognition as to what our issues are. We do not want to render these plans obsolete. If you render these plans obsolete you are going to see no net gain in jobs for the South Dade area; you're going to see no net gain improvement; and the only thing you're going to see coming out of here is power for other areas. (**0001-22-3** [Flinn, Eugene])

Comment: Now, we have an opportunity to properly site these areas but that's not the plan on the board here. We have two other boards here. These are not from Palmetto Bay, Pinecrest, or Cutler Bay. But just to show you the charrettes that the South Dade area have been involved in in trying to revision this area, the Leisure City Naranja Lake charrette area plan. And, Paul, if you could talk about the goals and come up with your plan and the South Dade, too. Because we're trying to put together a comprehensive vision for South Dade. This is not a single city issue; this is a regional issue that affects the entire county. And we need to work together to find the least intrusive solution to this problem. And right now we're in a position to where we have to take this head on and try to get a result in the best interest of South Dade. And that's why we're opposing this at this time. (**0001-22-4** [Flinn, Eugene])

Comment: I'm proud to be here with my colleagues from Palmetto Bay and Pinecrest and to speak in opposition to the transmission line on US-1. I am not here to speak -- and my mind is not made up -- on the wisdom of the additional reactors. That is not the issue that I am authorized to bring here on behalf of my Town Council. However, I am authorized -- we do have a Resolution on our record that Mayor Flinn turned in that said that we do not feel that it is in the public interest to do transition -- transmission lines up US-1. (**0001-23-1** [Vrooman, Paul])

Comment: And the reason why I want to discuss that is an environmental factor. What is environmental impact? Is it just the impact that happens on the site; is it what happens adjacent to the plant; is it the footprint of the plant; or is it broader policy? Well, we've had discussions in this community on a regional basis about suburban sprawl, and about sprawl going out into places like the Everglades; something that our country is spending billions of dollars to try to mitigate and try to repair. So, if we are creating policies or -- that respond to that as our in-fill policies and our smart growth policies have done on a regional basis to combat that, which essentially means adding mixed use, urban in-fill, transit-friendly development on the US-1 corridor, and this plant results in a transmission line gutting that plan by running up US-1, then I see that as a very definite environmental impact. The impact of that transmission line won't be -- you won't be able to identify that on US-1 specifically. But I can tell you that when the next ring of homes and the next ring of development goes out into the Everglades because we have

not provided an alternative to that on US-1, that will be directly because of these decisions that are going to be made, vis-a-vis this application. (**0001-23-2** [Vrooman, Paul])

Comment: I think that we've said that enough times but I do want to reflect that I do see this as an environmental issue. I do see this as effectively gutting the regional response from the county and all the municipalities up and down US-1 to come up with a response to suburban sprawl that is economic friendly. I think if you look at the boards around me, it's not hard to imagine the number of jobs that that will create that will come from that construction, that will come from the businesses that will be there, and it is much, much Greener, environmental friendly alternative growth patterns. And this will be very, very detrimental to our ability to make that come true. (**0001-23-3** [Vrooman, Paul])

Comment: I want to agree with the mayors of Palmetto Bay, Cutler Bay, and Pinecrest. We've done some incredible things on walkable areas along US-1. We should protect those and I do believe that should be in the scope. (**0001-24-6** [Harum-Alvarez, Albert])

Comment: Additional environmental destruction would involve their desire to put the transmission lines through Everglades National Park, because all the towns up US-1 don't want any more transmission lines. So where else do you put them? Well, you go tear up the Everglades and put them out there. (**0001-6-8** [Miller, Lloyd])

Comment: FPL's proposed transmission corridor will impact upon lands within Everglades National Park and the footprint of BBCW and seek to fill more than 300 acres of wetlands. In addition, the other proposed sites for these transmission lines is along the US-1 corridor which is very important for nodal growth as this is an area where public transportation exists. And if we don't develop along these nodal corridors, then this encourages sprawl which will, of course, affect Everglades and other wetlands. (**0001-7-5** [MacLaren, Kaitlin])

Comment: In closing, I also want to join the voices of the Mayors from Cutler Bay, Palmetto Bay, South Miami and Pinecrest, who object to the environmental impact of power lines along the US-1 corridor, which would destroy the plans of mixed use pedestrian and transit oriented development, compact urban form that holds the line on urban sprawl, and which in turn protects our Everglades and environmentally sensitive areas. (**0002-1-5** [Sorenson, Katy])

Comment: Power lines through Everglades National Park. That's another part of this licensing thing. The land that was purchased by the people of the United States in a place called the East Everglades Expansion Area, was purchased for one particular reason; the protection and restoration of that section of the Everglades, the Shark River Slough, the heart of the Everglades ecosystem. Now FP&L is planning to put three power lines through that National Park, the iconic National Park in Florida; 150 feet tall, 500,000 kilovolts each. And they're demanding that the Park turn over the eastern edge to them so they can put this thing in there. How do they get away with that? I looked at the documents at the beginning when that expansion area first came through. NPS looked at that corridor that they owned. They said, well, we valued the land, we can give you 100, $200,000 for it. When could you turn it over? That was 20 years ago, and now they're on the verge -- National Park Service is on the verge of turning this corridor, on the eastern edge of our Park, over to them. Not only is it going to create

an industrial landscape for Everglades National Park, which will happen. 150 foot tall towers would be visible from Shark River Slough. (**0002-14-9** [Schwartz, Matthew])

Comment: The transmission lines along the US-1 corridor is a direct contradiction of what we, the leaders of these cities, have envisioned for an improved US-1 corridor which will allow us to go ahead and develop our communities in smart ways rather than going further into the Everglades. (**0002-2-2** [Meerbott, Tim])

Comment: Do not allow transmission lines to be run down US 1. This is a primary federal highway that runs directly through many south Florida cities. Please run these down our expressways and railway right of ways to prevent aesthetic loss of property values along our cities. (**0008-3** [Garcia, Preston])

Comment: Consider the full the impacts of construction of the transmission lines and related facilities as they relate to rights-of way issues, relocation of facilities and infrastructure, and provide the appropriate mitigation strategies. (**0019-5** [Hamilton, Karen])

Comment: Ensure the proposed transmission lines are compatible with existing and future uses in terms of mass, scale and height. (**0019-7** [Hamilton, Karen])

Comment: Consider how the placement of transmission lines along the more urbanized areas of the two proposed corridors will affect future opportunities to provide new transit features, the South Miami-Dade Busway or Metrorail expansion, greenways and pedestrian features, redevelopment projects, and scheduled roadway improvements (**0019-9** [Hamilton, Karen])

Comment: Provide contextual perspectives for both existing and proposed electric poles and supporting infrastructure to demonstrate that chosen technology and structures will be compatible with the surrounding land uses. (**0023-3-31** [LaFerrier, Marc])

Comment: Please provide a detailed description of the construction methodology that will be used to limit secondary impacts, especially along the linear infrastructure features. (**0023-3-52** [LaFerrier, Marc])

Comment: Potential impacts from the construction and operation of transmission lines and access roads in either the West Preferred or West Secondary Corridors include disruption of hydrologic flows; wildlife and habitat disruption; wetland plant community destruction; reduction of native plant species populations; adverse effects on threatened and endangered species and migratory birds; introduction of non-native, invasive species; air and water pollution; noise; impacts to cultural resources, adverse impacts to viewsheds and wilderness character; and degradation of park visitor experiences. A cultural resources survey should be performed to identify cultural resources in the two corridors and measures to avoid and minimize potential impacts. (**0025-2-10** [Kimball, Dan] [Lewis, Mark])

Comment: The EIS should evaluate the direct, indirect and cumulative effects of the transmission lines and related facilities needed to connect Units 6 & 7 to FPL's electric transmission system. (**0025-2-5** [Kimball, Dan] [Lewis, Mark])

Comment: The Western Transmission Line Corridor includes two options, a West Preferred Corridor option and a West Secondary Corridor option. Either option would include the installation of two 500 kV transmission lines, one 230 kV transmission line and related towers, guy wires, ground wires, fill pads, and access roads. Both corridors are partially located within the boundaries of Everglades National Park Expansion Area as shown in Fig 9.4-13 of the COLA Environmental Report. (**0025-2-7** [Kimball, Dan] [Lewis, Mark])

Comment: The NPS is conducting a wilderness study for the 109,500 acre ENP Expansion Area. This study evaluates lands for possible recommendation to Congress for inclusion in the national wilderness preservation system as required by the Wilderness Act of 1964. Construction of transmission structures and access roads in the West Secondary Corridor would result in 320 acres of lands not being eligible for wilderness designation. FPL's West Preferred Corridor runs through lands within the Expansion Area that may also be eligible for wilderness designation. The eligibility of lands adjacent to either corridor would be adversely affected by introducing visible man-made structures (such as transmission facilities), and introducing noise (from construction/operation/maintenance activities) that would adversely affect opportunities for solitude. (**0025-3-37** [Kimball, Dan] [Lewis, Mark])

Comment: Kingston Square Condominium is located at 9300 -9430 SW 77th Avenue and our street is the preferred route for FPL to erect 80 -100 foot transmission lines of 230 volts. This is an outrage! Ours is a quiet residential street of homes, condominiums, a Baptist Church with orphanage, and small businesses. (**0031-2** [De Villiers, Elena])

Response: *Environmental impacts associated with the planned new transmission corridors and roadways will be addressed in Chapters 4, 5, and 7 of the EIS, as will potential impacts associated with upgrades to the existing lines if required. The land-use impact analyses sections in Chapters 4, 5, and 7 will consider the compatibility of the proposed transmission lines and other offsite facilities with existing and proposed land uses in the affected areas and with land-use plans under consideration by State and local governments. The analyses will also consider potential impacts from the transmission lines and other offsite facilities on Everglades National Park, Biscayne National Park, and other affected public lands. The impacts of power lines on human health will be addressed in Chapter 5.*

Comment: FPL owns, and has owned since the 1960's and early 1970's, approximately 320 acres of undeveloped land within the Expansion Area (part of the West Secondary Corridor). Since the FPL Property is currently undeveloped and is needed for the restoration and enhancement of the ecosystem through improvement of natural hydrologic conditions, the NPS intends to acquire the FPL property and manage it as part of ENP and to maintain the FPL Property in its undeveloped natural condition. The NPS began negotiations with FPL in 1996 but to date the federal government and FPL have been unable to reach an agreement on the direct acquisition of FPL's property by the United States. (**0025-2-8** [Kimball, Dan] [Lewis, Mark])

Comment: As noted, in Section 9.4.3.1 of the COLA Environmental Report, the Omnibus Public Land Management Act of 2009 authorized the Secretary of the Interior to exchange 260 acres of NPS property within and along the eastern edge of the Expansion Area (part of FPL's West Preferred Corridor) for FPL's 320-acre property within the Expansion Area (part of FPL's West Secondary Corridor). The NPS lands being considered for exchange were acquired

by the NPS for the purpose of restoring the hydrology and ecology of the park. The exchange decision is left to the Secretary's discretion subject to conditions necessary for protection of resources, equalization of land values and evaluation of potential environmental impacts pursuant to the National Environmental Policy Act (NEPA). The NPS is currently preparing an environmental assessment regarding the potential exchange. At the conclusion of the NEPA process, the NPS will decide whether to exchange lands with FPL or to acquire the FPL property by direct purchase/eminent domain. There are many uncertainties regarding the exchange, and it is not a foregone conclusion that the NPS will decide to exchange lands. An NPS decision to acquire FPL's property, rather than exchange lands, would result in neither corridor within the Park being available for placement of transmission lines.
(**0025-2-9** [Kimball, Dan] [Lewis, Mark])

Response: *Potential land-use impacts of building and operating proposed Turkey Point Units 6 and 7 on the Everglades National Park, Biscayne National Park, and other parks and preserves, including impacts on wetlands within those areas and on threatened or endangered species, will be evaluated in Chapters 4, 5, and 7 of the EIS.*

Comment: The applicant must provide details on what other parties are filing alternate transmission line corridors, along with an explanation of how the process for approving transmission line corridors differs, including but not limited to obligations of other parties to meet applicable Conditions in Z-56-07, when FPL is not the applicant. (**0023-3-19** [LaFerrier, Marc])

Comment: The map series showing the transmission corridor locations do not differentiate between existing rights-of-way/easements and areas proposed. (**0023-3-20** [LaFerrier, Marc])

Comment: Maps and narratives do not demonstrate existing rights-of-way or existing certified corridors along the proposed east and west transmission corridor alignments.
(**0023-3-37** [LaFerrier, Marc])

Comment: Location of greenways/trails are not shown in map series showing preferred corridors or secondary corridors although the criteria in Tables W 9.3.1-4 and E 9.3.1-4 specifically state that the acquisition status of existing and proposed greenways was included in the Alternative Route Qualitative Evaluation Criteria. Please provide mapping of existing and proposed greenways. The Application does not address the Parks and Open Space System Master Plan prepared in compliance with Policy ROS-4 of the Recreation and Open Space Element of the CDMP and as approved by the Board of County Commissioners.
(**0023-3-62** [LaFerrier, Marc])

Comment: Materials provided are not sufficient to determine whether corridor alignments, construction techniques, and proposed pole designs will ensure protection of future inland wetlands, wellfield areas, and Natural Forest Communities from incompatible land use.
(**0023-3-63** [LaFerrier, Marc])

Response: *These comments refer specifically to the SCA submitted to the State of Florida by FPL, but they indicate an interest in the potential impacts of the proposed transmission lines. The review team will assess the potential impacts of the proposed transmission lines in Chapters 4 and 5, based on the affected environment described in Chapter 2.*

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse impacts of the Turkey Point FPL power station and its transmission lines on the environment, including any cost-benefit analyses, please provide them. (**0022-1-6** [Reynolds, Laura])

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse impacts of construction and operation of the proposed Eastern Transmission Corridor and the proposed Western Transmission Corridor, on the environment, including any cost-benefit analysis, please provide them. (**0022-1-7** [Reynolds, Laura])

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse impacts of construction or operation of the Clear Sky switchyard, the Davis substation, the Miami substation, the Pennsuco substation or the Levee substation in the future, including any cost-benefit analysis, please provide them. (**0022-4-5** [Reynolds, Laura])

Response: *The potential impacts of building and operating proposed Turkey Point Units 6 and 7 and associated offsite facilities, including transmission lines, on the environment will be addressed in Chapters 4, 5, and 7 of the EIS, based on the affected environment described in Chapter 2. The EIS will include citations for documents used in its preparation.*

Comment: We are limited in what we can do with underground lines, or overhead poles, or all of the things that are needed to get the transmission of the power to all of our communities. (**0001-25-5** [Horton, Richard])

Comment: Explore the alternatives of undergrounding and co-locating transmission lines with Metrorail. (**0019-10** [Hamilton, Karen])

Response: *The environmental impacts of building and operating the proposed transmission lines will be addressed in Chapters 4, 5, and 7 of the EIS. However, the review team does not advise the applicant on alternative designs of transmission facilities; these decisions are made by the applicant and State regulatory bodies. Therefore, issues related to possible underground transmission lines would ordinarily not be addressed in the EIS. However, the Corps of Engineers, and perhaps the National Park Service, will be cooperating with the NRC on the EIS. To the extent that a cooperating agency addresses such alternatives for its NEPA analysis, those alternatives would likely be included in this EIS in order to support the cooperating agency's environmental review.*

Comment: The SFWMD recommends that the following issues be addressed in the Environmental Impact Statement: Electrical Transmission Lines - The potential for the Preferred Corridors to adversely impact SFWMD-owned communications towers and radio matrix sites. In particular, the West Preferred Corridor is located very close to various SFWMD communications towers and radio matrix sites. Although FPL has indicated that they will work with the SFWMD to resolve any unlikely interference issues, they have not provided the SFWMD with adequate information to determine if or to what extent critical SFWMD-owned communications facilities

may be impacted by the proposed transmission line facilities. The SFWMD advised FPL that it is unacceptable to wait until impacts have occurred to identify, design, permit, construct, and implement solutions, since this could substantially impact the SFWMD's ability to use these facilities to meet SFWMD flood protection and other critical emergency management responsibilities. (**0032-22** [Golden, James])

Response: *The impacts of operating proposed Turkey Point Units 6 and 7, including the impacts of the associated transmission lines, on community services, will be addressed in Chapter 5 of the EIS. The potential impact of transmission lines on radio signals used by local and regional agencies to perform their missions will be considered in preparing that chapter.*

D.1.6 Comments Concerning Geology

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse impacts of operation of the rock mining associated with the Turkey Point FPL power station on the environment in the past, currently, and in the future, please provide them. (**0022-1-14** [Reynolds, Laura])

Response: *Available information about the fill source will be provided in Chapter 3 of the EIS. The potential impacts of obtaining fill material on water resources will be presented in Chapter 4 of the EIS, based on baseline information on the affected environment described in Chapter 2. The cumulative impacts of the actions proposed by FPL to build and operate proposed Turkey Point Units 6 and 7 along with other past, present, and reasonably foreseeable future actions will be presented in Chapter 7.*

D.1.7 Comments Concerning Hydrology – Surface Water

Comment: And the one last thing I keep wondering about is, the nuclear power plants generate hot water; correct? What about desalinization, especially in areas like South Florida, to take that hot water and use it as part of a desalinization solution? (**0002-17-6** [Eney, Douglas])

Response: *The impact of effluents discharged from proposed Turkey Point Units 6 and 7 on water resources and ecological resources will be discussed in Chapter 5 of the EIS. The NRC does not advise the applicant on alternative uses of waste heat from a power plant; these decisions are made by the applicant and State regulatory bodies. Therefore, the comment related to alternative use of waste heat will not be discussed in the EIS.*

Comment: We also continue to be concerned about the saltwater intrusion into the Biscayne Bay that is being facilitated by the current cooling canals. The effects of the increased salinity are negatively impacting Biscayne Bay restoration efforts. (**0001-15-3** [Cornick, Lance])

Response: *The review team will assess and discuss baseline water-quality conditions within the affected environment in Chapter 2 of the EIS. The team will assess the impacts of building and operating proposed Turkey Point Units 6 and 7 on water resources in Chapters 4 and 5, respectively. The cumulative impact of the proposed action and other past, present, and reasonably foreseeable actions that have the potential to affect water resources will be discussed in Chapter 7.*

Comment: Water impact and the saltwater intrusion has been coming to Dade County -- I used to swim right there before the plant was built. I used to crab right there -- just south of there. I was a human bobber. My dad used to pull me behind the boat and used to go and dive and get crabs and all kind of fish. You don't see a lot of that now. But, is it the plant's fault? No. It's because Dade County has gone from 100,000 people to 1 million 9, or whatever our current is. And that impact is going to continue. It's not the plant that's causing the problem. Our water situation, with that mitigation of fresh water flowing out to the ocean, now you're going to have saltwater coming in; it's not the plant's fault. (**0002-12-4** [McHugh, John])

Response: *This comment refers to changes in baseline water quality and aquatic ecology in Biscayne Bay in the vicinity of the proposed units. The review team will present baseline water-quality conditions within the affected environment in Chapter 2 of the EIS. Predicated on this information, the team will assess the impacts of the proposed action on water resources in Chapters 4 and 5 for building and operating proposed Turkey Point Units 6 and 7, respectively. The cumulative impact of the proposed action and other past, present, and reasonably foreseeable actions that have the potential to affect water resources will be discussed in Chapter 7.*

Comment: Growing up in Florida I have seen firsthand our issue with water consumption and lack of water. Lately, reports of clean water becoming scarce is an issue being talked about by many world leaders. Half of the world's schools do not have access to clean water and 1.5 billion people do not have access to clean water either. We're taking water, one of our most precious natural resources, for granted by consuming so much through nuclear energy. Conserving water and our incredible ecosystems in Florida should be a main priority and a main influence for FP&L decisions. Nuclear power is very water-intensive and we'll only have problems in the future. It is not efficient as other options that Florida should be considering, such as solar and wind. (**0001-19-2** [Ryan, Megan])

Comment: But we also need to consider that the water they're going to be using, the 90 million gallons of water that they want to use to cool these plants, is about one-third of our grey water, and there are other alternatives that we could use for that. We could be using irrigation and other areas rather than just turning it over to FP&L. So I want them to consider the use of the water along with the impact it will have on the development of the US-1 quarter. (**0002-2-3** [Meerbott, Tim])

Comment: As a result, we request that the scoping that you're providing in the EIS present a very high level of detail in the water resource mass balance of both the hydrology and the water chemistries that we have in South Dade County to prohibit any negative impacts. We already have enough negative impacts, and last year was a good example. We had a drought that brought the surface water of the Biscayne aquifer down to zero, and as you know we can't keep it at zero too long with the saltwater head pushing inland. So, we need to do everything we can to protect our water resources and our water supply for our citizens. (**0002-3-4** [Walker, Tom])

Comment: What are the cumulative effects of radial collector wells on water conditions in Biscayne Bay, including salinity, flushing, clarity, water quality, localized temperatures, etc.? Further, what are the anticipated effects at increments of 25%, 50% and 100% of full implementation of this proposal? (**0018-12** [Poole, Mary Ann])

Comment: Radial Collector Wells: The application does not provide enough information on this technology and the current conditions at the locations of the radial collector wells for us to assess whether their construction or operation would have an impact on fish and wildlife resources. We wish to point out the highest priority for recovering the ecosystem health of Biscayne Bay is on addressing the negative impacts that water resource development and water management have had on the salinity regime of the Bay and its associated coastal wetlands, which provide important habitat for fish and wildlife resources. If radial collector wells, which are vertical wells that then discharge laterally via a series of pipes underground, would disrupt the groundwater system, which is closely tied to surface water (which in turn supports fish and wildlife resources) in this extremely porous karst area, this proposal would seem to be contrary to commitments made by the Governor's Office and U.S. Congress, which signed into law authorizations to restore Biscayne Bay (Water Resources Development Act of 2000 -see http://www.fws.gov/habitatconservation/omnibus/wrda2000. pdf). (**0018-7** [Poole, Mary Ann])

Comment: Whether the extraction of water from the Biscayne Bay system will change or reduce the freshwater inflow to the bay and/or increase salinity at least seasonally shall be examined through additional modeling as part of the application. (**0023-1-48** [LaFerrier, Marc])

Response: *The review team will assess the impacts of building and operating proposed Turkey Point Units 6 and 7 on the water quantity and quality of both local and regional water resources and identify mitigation measures proposed by the applicant to reduce adverse impacts. This assessment will consider current and future conditions, including changes in water demands to serve the needs of the future population, and changes in water supply. The review team will present baseline water quality conditions in the environment around the proposed site in Chapter 2 of the EIS. The impacts of building and operating the proposed units on water resources will be presented in Chapters 4 and 5 of the EIS, respectively. Cumulative water-use impacts will be addressed in Chapter 7 and cooling-water alternatives in Chapter 9.*

Comment: Florida Power & Light refers to plans to fill at least 70 acres of existing wetlands in the Miami Dade region surrounding Turkey Point. This fill could have devastating impacts on the surrounding environment and economy, as it would eliminate 70 acres of existing flood water storage during intense rainfall or hurricane. Filled wetlands can cause both on-site and off-site flooding [2], damaging the plant itself on property owned by Florida Power & Light, and also causing possible devastating damage to the surrounding communities, even possible loss of life. (**0007-6** [Burris, Jessica])

Response: *The environmental impacts of building and operating proposed Turkey Point Units 6 and 7, including the infilling of wetlands, on local hydrology and terrestrial ecology will be evaluated in Chapters 4 and 5 of the EIS. Safety issues related to potential floods are outside the scope of the environmental review, but will be evaluated by the NRC staff in its SER.*

Comment: If the scientists are correct, and they keep moving that global warming -- not global warming, but global sea level change up more and more because the glaciers of Greenland, of Antarctica, are melting. They are melting. You don't have to believe it or not. Look at the photos and look at it, look at the measurements and look at it. (**0002-14-14** [Schwartz, Matthew])

Comment: Sea level rise is a real and ongoing interesting element that we haven't had to deal with before that is going to be causing major challenges to our infrastructure. We would hope that FPL's proposed facility do not add any unintended consequences by moving millions of tons of dirt and moving waters around that could increase the potential impacts as a result of the already impacting sea level rise. (**0002-3-6** [Walker, Tom])

Comment: [L]ook ahead through the expected life of the new facilities, and should consider potential future conditions in the analysis, including a change in sea level. Sea level has been rising in this region since records were established, and could ultimately affect how the plant and associated facilities interact with the surrounding environment. Miami-Dade County recommends that the time period for projections of future conditions include the potential that the license would be renewable for a second operational period. This has been the case for the existing Units 3 and 4. Given FPL's operational record, there is no reason to assume otherwise for the proposed Units 6 and 7. (**0015-6** [Espinosa, Carlos])

Comment: A further 2-foot sea level rise by the end of the century, as projected in the 2001 IPCC report, would make life in south Florida very difficult for everyone. Spring high tides would be +4.5 to 5 feet above present mean sea level 3 q; storm surges would be higher; barrier islands, fill islands and low-lying mainland areas would be frequently flooded; salt water intrusion would restrict available freshwater resources; drainage would be more sluggish; Turkey Point would be an offshore island; and so on. (**0016-9** [White, Barry])

Comment: Please state all the projections for sea level rise used by the NRC. (**0022-1-4** [Reynolds, Laura])

Comment: No identification of sea level rise projections used to model the water management project provided. (**0023-3-59** [LaFerrier, Marc])

Comment: Other specific issues NMFS recommends for evaluation in the EIS or EFH assessment: 5. *Sea level rise*. Please include information in the EIS that evaluates potential seal level rise scenarios and how the project is being designed to mitigate these effects. (**0033-13** [Croom, Miles])

Response: *The review team will assess the impacts of building and operating proposed Turkey Point Units 6 and 7 on local and regional water resources and aquatic and terrestrial ecology. This assessment will consider both current and future conditions that affect the environment including sea level rise and mitigation measures identified by the applicant that could reduce adverse impacts. Impacts on water and ecological resources from building and operating the units will be discussed in EIS Chapters 4 and 5, respectively. Cumulative impacts will be addressed in Chapter 7 and plant design alternatives in Chapter 9. The period of consideration for environmental impacts is over the 40-year license period; under the NRCs environmental protection regulations (Title 10 of the Code of Federal Regulations [CFR] Part 51), which implement Section 102(2) of the National Environmental Policy Act of 1969, as amended (NEPA), if renewal of the operating license is requested, preparation of an EIS would again be required. Because license renewal is not certain to occur (or even to be requested), to include that extended period for environmental impacts would be speculative and outside the bounds of*

NEPA. Therefore, the assertion that the time period for projection of future considerations should include a second operational period is out of scope for this EIS.

Comment: Please state the amount of disruption to sheetflow of wetlands that the construction of units 6 & 7 will make including the plant site, all support facilities, all structures, all borrow pits (including rockmines) all fencing, all roads, all berms, all pipelines, all transmission lines, all basins, all parking lots, and all vehicle usage. (**0022-2-19** [Reynolds, Laura])

Comment: The application does not provide a description of the specific upgrades FPL proposes to satisfy this condition. A complete and detailed description shall be provided. In addition, FPL shall describe what sheet flow improvements, if any, are proposed within transmission corridors for which mitigation lift is being sought. (**0023-3-26** [LaFerrier, Marc])

Comment: Please resolve the apparent conflict between this condition and the stated intent to install roads in the transmission line corridors where no impediments to sheetflow currently exist, such as the portion of the West transmission corridor in Section 31 T57S R39E. (**0023-3-27** [LaFerrier, Marc])

Comment: The construction of proposed access roads to the new reactor facility will also impact the Biscayne Bay Coastal Wetlands Project by altering sheet flow that is important to the success of the Project. (**0025-2-17** [Kimball, Dan] [Lewis, Mark])

Comment: The SFWMD recommends that the following issues be addressed in the Environmental Impact Statement: Electrical Transmission Lines - The potential for adverse impacts to existing wetland slough systems, located within the vicinity of U.S. Highway 1, from new and/or improved fill roads associated with the West Preferred Corridor. East of U.S. 1, under the CERP Biscayne Bay Coastal Wetlands Project, additional surface water flows are to be diverted southward, through existing wetland slough systems in this area, to hydrate wetlands to the south, including wetlands in the SFWMD's Model Lands Basin area, and possibly the SFWMD's Southern Glades Basin area. The SFWMD is a partner with the USACE in this project. Even if culverts are installed, they are very poor at maintaining low head flows (i.e., sheetflow). West of U.S. 1, the corridor crosses the SFWMD's Southern Glades Save Our Rivers Parcel GR701-025. (**0032-23** [Golden, James])

Comment: The SFWMD recommends that the following issues be addressed in the Environmental Impact Statement: Electrical Transmission Lines - Regarding Water Conservation Area 3B, there are potential impacts related to the construction, operation, and maintenance of the proposed transmission line with respect to the SFWMD's legally mandated responsibilities for managing its lands within Water Conservation Area 3B. These lands were specifically acquired for water management-related purposes (i.e., flood control, water supply, conservation, reclamation, and other allied purposes) and are managed by the SFWMD and other agencies, including the U.S. Fish and Wildlife Service and the Florida Fish and Wildlife Conservation Commission, through special agreements for those purposes. (**0032-26** [Golden, James])

Response: *The review team's assessment of the impacts of building proposed Turkey Point Units 6 and 7 on the environment, including impacts on sheetflow associated with building*

roads, transmission lines, and other linear features, will be presented in Chapter 4 of the EIS. Cumulative impacts will be addressed in Chapter 7. The EIS will include citations for documents used in its preparation.

Comment: Simulation should cover, at a minimum, the area bounded by SW 344th St in the north, Old Card Sound Road in the west, and the coastline in the south and east. The EPA-SWMM and XP-SWMM are recommended models to simulate the variety of structures within the area, in order to obtain hydrographs and pollutographs at selected points. The model should also simulate contaminant transport and dilution effect. Event simulations should be run to obtain the conditions before and after the proposed development, including the new inflow and loads from the proposed Administrative/Training Buildings, Parking area, and Reclaimed Water Treatment Facility. (**0023-1-13** [LaFerrier, Marc])

Response: *This comment refers specifically to the SCA submitted to the State of Florida by FPL, but it indicates an interest in the potential impacts of the building of the proposed units on local and regional water supply and water quality. Modeling data provided by the applicant will be reviewed and evaluated in the course of the development of the assessment. The assessment of the impacts on water resources from building proposed Turkey Point Units 6 and 7 will be presented in Chapter 4 of the EIS, based on information describing the affected environment in Chapter 2.*

Comment: Please provide drainage plans and associated calculations for the proposed access roads. (**0023-2-20** [LaFerrier, Marc])

Comment: The mitigation plan proposes to discharge wastewater into the Model Lands and to seek mitigation credit for this discharge. Since the area proposed for discharge is a sawgrass wetland, pollutant levels, including but not limited to nutrient levels, would need to be very low (e.g. less than 10 ppb phosphorous). The application, however, provides insufficient information on the treatment methodology, the resulting quality, volume, and timing of the discharge. The applicant shall provide complete and detailed water quality information for the proposed discharge water that is sufficient to determine whether the water quality of the proposed discharge water is sufficient to prevent degradation of the receiving wetlands. (**0023-3-43** [LaFerrier, Marc])

Comment: In order to have hydrologic improvements, with the exception of reclaimed water, water must be captured or diverted from other areas. Please describe in detail how the redirection of water will affect those donor areas, such as Biscayne Bay. Is there a loss of function from some areas associated with the diversion of water for the proposed hydrologic improvements? (**0023-4-1** [LaFerrier, Marc])

Comment: [T]he application does not provide sufficient information to evaluate the impact of these discharges on water quality of adjacent surface. (**0023-4-11** [LaFerrier, Marc])

Response: *These comments refer specifically to the SCA submitted to the State of Florida by FPL, but they indicate an interest in the potential impacts of the operation of proposed Turkey Point Units 6 and 7 on water availability, water quality, and terrestrial ecology. The review team's assessment of impacts on local and regional water resources and terrestrial ecology*

from building the proposed units will be presented in Chapter 4 of the EIS. Impacts from operation of the proposed units will be presented in Chapter 5. Cumulative impacts will be addressed in Chapter 7 and plant effluent discharge alternatives in Chapter 9.

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse impacts of utilizing reclaimed water as supplied by M-D County to the Turkey Point FPL power station in the future, including any cost-benefit analyses please provide them. (**0022-1-8** [Reynolds, Laura])

Comment: [T]he COL proposes the use of tertiary treated wastewater as the primary cooling water supply source for Units 6&7.] Biscayne Bay is designated an Outstanding Florida Water and as such has a no degradation standard. The use of tertiary treated wastewater for cooling water would indirectly introduce PPCPs, surfactants, biocides, and EDCs into southern Biscayne Bay that were not present at the time of designation. (**0025-2-4** [Kimball, Dan] [Lewis, Mark])

Response: *These comments refer to the impacts of using treated wastewater as the primary cooling water supply for proposed Turkey Point Units 6 and 7. The impacts of the proposed units on local and regional water resources, including impacts related to using reclaimed water on water quality in Biscayne Bay, will be presented in Chapter 5 of the EIS, based on information describing the affected environment in Chapter 2 and plant design and operations discussed in Chapter 3. The EIS will include citations for documents used in its preparation.*

Comment: A lot has changed since this facility was originally sited here. You are about to undertake an analysis of a proposal to place two nuclear reactors on the shores of a bay that is the subject of a major Federal multi-billion dollar restoration project. The nature of the impacts that this project will have; water consumption, wetland loss that is sort of off the charts in terms of modern wetland permitting in Southeast Florida; habitat loss; impacts to hydrology in the way water moves, are the types of impacts that that multi-billion dollar Federal project is trying to reverse. And so the notion of coming in and bringing about water use impacts, that are unlike anything else known in South Florida, and wetland impacts that are kind of off the charts, just fundamentally is a major problem and doesn't really add up. The exacerbation of things that one arm of the Federal Government is trying to fix, doesn't make sense in the modern world. (**0002-6-1** [Grosso, Richard])

Comment: Will this project potentially interfere with the goals of the Biscayne Bay Coastal Wetlands Project (BBCW)? Please indicate how the applicant is coordinating with the BBCW team to ensure that the use of the radial collector wells will not hinder the success of the BBCW project. (**0018-11** [Poole, Mary Ann])

Comment: The application predicts the potential for additional salinization throughout the area as a result of the project by drawing salty water landward via the radial collector wells and from deposition of salts as a result of cooling tower operations. In contrast, the CERP BBCW project seeks to reduce salinity levels in and adjacent to Biscayne Bay to restore more natural estuarine conditions. No documentation is provided to examine the specific impacts to the area from additional salinization generally and for CERP consistency specifically. A study is needed that

includes a salt budget and an examination of the cumulative effects of existing and proposed operations at Turkey Point including but not limited to the existing chloride plume created by the cooling canal system and the additional salts that would be added to the area as a result of the proposed project. The study shall also be sufficient to determine the extent to which the radial collector wells would capture, redirect, or otherwise affect groundwater from the existing plume emanating from FPL's Cooling Canal System. (**0023-3-39** [LaFerrier, Marc])

Comment: Narrative description of the timing and the approval process of the FPL water management project and the Alternative "O" CERP project, to ensure that both can and will likely be accomplished. Analysis by FPL, with cooperation from the SFWMD, on whether the incorporation of the water management project into the CERP process will alter or jeopardize the potential approval and funding of the CERP project not provided. (**0023-3-60** [LaFerrier, Marc])

Comment: The groundwater modeling is currently insufficient to effectively simulate impacts to the bay, or even to determine the percentage of fresh water from the aquifer, which would be removed from the ecosystem by the RCWs. Until it can be satisfactorily determined that the RCW system will not remove aquifer water, this plan appears to conflict with the CERP Biscayne Bay Coastal Wetlands project. (**0025-2-15** [Kimball, Dan] [Lewis, Mark])

Comment: Construction of infrastructure associated with transmission lines and access roads in either corridor would result in the permanent filling of over 100 acres of wetlands. Direct and indirect effects of filling need to be included in the evaluation of impacts resulting from this project. In particular, installation of additional access roads in either corridor would create new barriers to flow in a critical portion of northeast Shark River Slough. This area is a focal point of Modified Water Deliveries (MWD) and CERP restoration projects designed to restore natural flow to that area. In addition, modification of the existing L-31 N levee in the western preferred corridor to provide access to proposed transmission lines would create an impediment to the natural north to south flow of water in the area. Access roads, even if culverted, will result in reduction of surface water flow critical to maintenance of ENP wetlands. This is in direct conflict with one of the critical components of hydrological restoration under CERP. The impacts of this flow reduction on park wetland resources and on MWD and CERP restoration projects that are underway or planned needs to be evaluated. (**0025-3-35** [Kimball, Dan] [Lewis, Mark])

Comment: Construction, maintenance and vegetation management in either transmission line corridor identified by FPL would result in impacts to ENP water quality through soil disturbance and/or the introduction of chemical pesticides. These impacts need to be evaluated. (**0025-3-36** [Kimball, Dan] [Lewis, Mark])

Comment: The SFWMD recommends that the following issues be addressed in the Environmental Impact Statement: Radial Wells and Construction Dewatering Withdrawals at Power Plant Site - The potential for the proposed withdrawals to adversely impact the CERP Biscayne Bay Coastal Wetlands project. (**0032-10** [Golden, James])

Comment: Proposed Project may result in adverse impacts to: The Biscayne Bay Coastal Wetlands CERP Project -This project will replace lost overland fresh water flow and partially compensate for the reduction in groundwater seepage by redistributing, through a spreader system, available surface water entering the area from regional canals. The goal of this project

is to improve the ecological health of Biscayne Bay (including freshwater wetlands, tidal creeks and near-shore habitat) by adjusting the quantity, quality, timing, and distribution of freshwater entering Biscayne Bay and Biscayne National Park. Redistribution of freshwater flow and the expansion and restoration of wetlands will help to restore or enhance freshwater wetlands, tidal wetlands, and near shore bay habitat. The project, located in southeastern Miami-Dade County, includes pump stations, spreader swales, stormwater treatment areas, flowways, levees, culverts, and backfilled canals. The project covers 13,600 acres along the L-31 E Canal. The purpose of the project is to capture, treat, and redistribute freshwater runoff from the watershed going into Biscayne Bay, creating more natural water deliveries and expanding the spatial extent and connectivity of coastal wetlands and improving recreational opportunities. (**0032-2** [Golden, James])

Comment: Proposed Project may result in adverse impacts to: The L31 N (L-30) Seepage Management Pilot CERP Project -This project, located along a portion of the L-30 levee north of U.S. Highway 41 in Miami-Dade County, will help resolve critical uncertainties associated with seepage management, including the characterization of the Biscayne aquifer hydrodynamics, constructability in south Florida geology, reliability of materials and technologies, feasibility of implementing a seasonally flexible operating system, appropriateness of monitoring to evaluate effects on seepage, and cost and time requirements necessary for implementation. The recommended plan will test two structural seepage reduction technologies (steel sheet pile and slurry wall), and will test the ability to seasonally manage seepage flows through pumping operations with the use of extraction and injection wells. Field tests, seepage reports, and historical data independently show that this is one of the most transmissive parts of the Biscayne aquifer. (**0032-3** [Golden, James])

Comment: Provide assurance that the proposed roadway improvements will be designed to be compatible with CERP Biscayne Bay Coastal Wetlands Project Alternative "O". The amendment does not demonstrate how the proposed roadway improvements will be designed to be compatible with CERP Biscayne Bay Coastal Wetlands Project Alternative O. Under Alternative O, additional surface water flow :(sheetflow) is to be diverted southward, through existing wetland slough systems, into environmentally sensitive lands located south of Palm Drive (S.W. 344th Street), generally between the District's L-31E Canal and U.S. Highway 1. Under this amendment, several new roadway improvements are proposed that could interfere with the proposed sheetflow. Prior, to adoption, the amendment should be revised to include policies, strategies, and commitments to ensure that the appropriate engineering analyses are conducted and any proposed drainage features, including culverts, be designed, sized, and spaced to handle existing and proposed flows. (**0032-34** [Golden, James])

Comment: Proposed Project may result in adverse impacts to: The South Dade C-111 Project and Modified Water Delivery Project to Everglades National Park (Modwaters) -This project will modify the existing water management infrastructure to improve water deliveries to Everglades National Park (ENP). Changes are being made to Water Conservation Area 3A/3B levees and canals to redirect water flow into Northeast Shark River Slough in and around the proposed new Florida Power & Light (FPL) Turkey Point Units 6 & 7 transmission line corridors. Current water management actions focus on re-establishing sheet flow into ENP by removing barriers such as the Tamiami Trail road and replacing it with a bridge. Future water management changes will increase the volume of water introduced and distributed into Northeast Shark River Slough.

Additional changes are being implemented along the Lower C-1 11 Canal to promote rehydration of Taylor Slough and northern Florida Bay in the southern limits of ENP. A series of detention areas are being constructed west of the L31N Canal to provide storm water detention and create a hydrologic barrier between the managed canal levels and the Everglades marsh. Water levels will be managed at higher levels within the detention areas to create a positive hydrologic head and reduce seepage from ENP. (**0032-4** [Golden, James])

Comment: Proposed Project may result in adverse impacts to: Decompartmentalization of Water Conservation Area 3A/3B -This is a CERP project and a companion to the South Dade C-1 11/Modwaters Project promoting removal of existing levees and canals impacting sheet flow into ENP. Future changes include removal of existing canals, levees, and structures separating WCA 3A/3B and ENP, such as removal of the Miami Canal within WCA 3A, removal of the L-67A/C levee segments, and additional bridging of Tamiami Trail together with the removal of the L-29 containment levee. (**0032-5** [Golden, James])

Comment: In addition to the potential for significant adverse impacts to specific restoration projects, the SFWMD is concerned about the potential for significant adverse impacts that relate to its overall mission to manage the water resources of the State located within the SFWMD's geographic boundaries. (**0032-6** [Golden, James])

Comment: Other specific issues NMFS recommends for evaluation in the EIS or EFH assessment: 4. *Biscayne Bay Coastal Wetlands (BBCW)*. Please describe any potential conflicts this project may have with the restoration goals of BBCW. Please indicate how FPL and NRC are working with the BBCW team to ensure that any expansion at Turkey Point will not hinder the success of the BBCW project. (**0033-12** [Croom, Miles])

Response: *These comments refer to interactions between the proposed action and regional projects, including CERP projects. The review team will assess the impact of proposed Turkey Point Units 6 and 7 on local and regional water resources and aquatic and terrestrial ecology. Assessment of the impacts of building and operating the proposed units on water quality and ecological resources will be presented in Chapters 4 and 5 of the EIS, respectively. Cumulative impacts, including interactions with CERP and other restoration efforts, will be addressed in Chapter 7.*

Comment: The SFWMD recommends that the following issues be addressed in the Environmental Impact Statement: Additional Construction Impacts at Power Plant Site - The potential for adverse impacts to Biscayne Bay associated with the proposed barge canal dredging. (**0032-13** [Golden, James])

Response: *The impacts of the proposed action on hydrology and water quality in Biscayne Bay, specifically the impacts related to dredging of the barge canal (barge-turning basin and barge-unloading area), will be presented in Chapter 4 of the EIS. The impact assessment in Chapter 4 will be based on information describing the affected environment in Chapter 2 and plant design and operations discussed in Chapter 3.*

Comment: The NRC needs to acknowledge that this area is an extremely sensitive hydrological environment. The history of the Everglades and the current costly restoration

projects illustrate the long-term shortsightedness that has scarred Florida's waterways. (**0001-14-6** [Hancock, Mandy])

Comment: The new reactors will require more fresh water for cooling and there's already a shortage of water in the natural system. So, although the comprehensive Everglades Restoration Plan plans to provide reused water to help restore Biscayne Bay, the two new reactors would require additional water as well. This plan puts Florida Power & Light development in competition with Everglades Restoration and we think restoration has had enough competition already. (**0001-15-2** [Cornick, Lance])

Comment: The water use is massive. Biscayne Bay restoration is all about fixing the problem that we don't get enough fresh water into the bay anymore. So the notion that you would add this type of fresh water consumptive use right there at that same location, is incredibly troubling. We haven't figured out how we're going to get the amount of fresh water back into the bay that we need to make it work again. This water demand could absolutely preclude ever getting that done. (**0002-6-2** [Grosso, Richard])

Comment: Sixty billion gallons of water is the last statistic that I heard that would be needed per day. That's way too much water. And I also heard that it would be warmer after use, going into the cooling and going back into our water. And just a small degree change can definitely affect all of our wetlands and things here. (**0002-8-5** [O'Katy, Jessica])

Comment: [T]he new nuclear power plants will require more than ninety million gallons of fresh water a day to cool the reactors, causing severe problems to the already water restricted Southeast Florida. (**0012-10** [Payne, Nkenga])

Comment: THERE IS NOT ENOUGH WATER IN THE AREA TO SUPPORT TP 6&7! (**0016-11** [White, Barry])

Comment: The required amounts of water needed to operate the reactors is beyond the capability of the water supply in South Florida. I am presently restricted from certain water use. What will be my future if these reactors are allowed to be built? How much potable water will be needed to support the doubling of the plant without the reactors? (**0027-5** [Moses, Dorothy])

Response: *The impacts of building and operating proposed Turkey Point Units 6 and 7 on consumptive water use and cooling water discharge for both local and regional water resources will be presented in Chapters 4 and 5 of the EIS. Cumulative water-use impacts will be addressed in Chapter 7 and cooling water alternatives in Chapter 9.*

Comment: Table 4.6-1 states that occasional surface water overflow/run-off from deep well injection wells would be directed to the Cooling Canal System. This would cause infiltration of wastewater constituents, including EPOCs, to the Biscayne Aquifer and subsequently to Biscayne Bay via subsurface flow. Wastewater migration to the bay would negatively impact the flora and fauna of the nearshore habitat due to the release of nutrient and microconstituents (i.e., EPOCs), which requires further consideration. (**0025-3-15** [Kimball, Dan] [Lewis, Mark])

Response: *Table 4.6-1 indicates "The deep injection wells and the required monitoring wells would be installed in accordance with an FDEP injection well permit and any local permit*

requirements. During the construction of the injection wells and associated equipment, any surface water runoff would be directed to the cooling canals of the industrial wastewater facility." During construction, wastewater constituents will not be present at the well sites and so would not be discharged to the Cooling Canal System. The impacts of constructing the injection wells will be presented in Chapter 4 of the EIS.

D.1.8 Comments Concerning Hydrology – Groundwater

Comment: As Mayor of the Village of Pinecrest and a former legislator, when I did serve in the House of Representative in the Florida Legislature, I had an opportunity to learn about and really come to grips with some of the potential for contamination and impact on the Floridan aquifer and the Biscayne aquifer, and I've been very attentive to that ever since, the concept of placing deep well injection. And back in the year 2001, there was an effort by the State and the Legislature and the Water Management Districts, to inject untreated storm water into the aquifer, and that actually passed the Florida Senate. We had to go back and undo it and we killed that legislation. I have been very involved in supporting the sustainability and the comprehensive Everglades Restoration Project ever since. (**0001-21-2** [Lerner, Cindy])

Comment: And what will 70 million gallons of hot water do each day that they will have to get rid of? Where do you put 70 million gallons of water each day? You can't pump it down into the same place you're getting your cooling water from. If they got their cooling water from the sewage treatment plant then they would want to dump the hot water down into the boulder zone. Nobody has any idea what that would mean. We know that with sewage we pump way down deep into there offshore is now coming back up in Biscayne Bay and elsewhere. Also, that hot water is slightly radioactive. (**0001-6-6** [Miller, Lloyd])

Comment: FPL proposes to inject 40 million gallons a day of waste in the boulder zone, a layer of the lower Floridan aquifer. And we are -- as the previous speaker mentioned, we are really unclear what the effects of this might be. (**0001-7-10** [MacLaren, Kaitlin])

Comment: Please state the amount of waste seepage, by volume, into drinking water aquifers from deep well injection for units 6&7. (**0022-2-13** [Reynolds, Laura])

Comment: To the extent that you are aware of any of any consent decrees or administrative orders or settlements concerning underground injection control wells in Florida, please provide them. (**0022-2-8** [Reynolds, Laura])

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse impacts of operation of underground injection control wells in the South Florida area, please provide them. (**0022-2-9** [Reynolds, Laura])

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse impacts of the deep well injection of wastes exceeding the capacity of the wastes reservoir, please provide them. (**0022-4-6** [Reynolds, Laura])

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to the maximum geographical extent of the deep well injected waste reservoir for the duration of the operating license, please provide them. (**0022-4-7** [Reynolds, Laura])

Comment: The application does not address any proposed treatment of biocide additive in the cooling waters, and how biocides are removed before reinjection into the proposed deep wells. (**0023-1-15** [LaFerrier, Marc])

Comment: Given the high evaporation rate, the concentrations of the analytes leaving the cooling tower system will be significantly higher that the concentration of those analytes entering the system. Considering that the final discharge point of the cooling system blowdown water is proposed to be the boulder zone (via underground injection wells), projected water quality characteristics for the blowdown must be provided. (**0023-1-7** [LaFerrier, Marc])

Comment: The application proposes the discharges of industrial wastes from several sources to injection wells. No information was provided to ascertain compliance with the applicable discharge standards. No information was provided to show that no treatment is necessary or that contamination will not result from such discharges. (**0023-1-9** [LaFerrier, Marc])

Comment: The primary source of cooling water is supposedly reclaimed water from Miami-Dade Water & Sewer Authority. The daily flow rate for cooling is supposedly 60mgd. The EIS should confirm that the cooling water concentrate from the reclaimed water source will be disposed of in the boulder zone through a class one deep injection well. Similarly, if the Floridian Aquifer water is used for cooling, concentrated brine reject should be disposed of in the deep well injection system in the boulder zone. (**0024-6** [Walker, Tom])

Comment: Current hydrologic knowledge regarding underground injection into the Boulder Zone suggests that the porosity and permeability in the Floridan can vary greatly depending on the location and formation. A history of dual zone groundwater monitoring results from the Miami-Dade County South District Wastewater Treatment Plant shows evidence of wastewater contaminant migration into the Upper Floridan. Upon the submittal of the pending USGS groundwater underground injection investigation for this region, it may be soon proven that the geology of the injection zone is incapable of confining the volume of injected sewage. These same concerns seem applicable to this project and the very large amount of discharged fluids intended to be injected. The Upper Floridan supplies make-up cooling water for existing Unit 5. Based on the above discussion, a similar breach of the Boulder Zone is possible and would compromise the water supply quality of Unit 5. (**0025-3-21** [Kimball, Dan] [Lewis, Mark])

Comment: An even more frightening scenario is FPL's intention of using injection wells for radioactive wastewater. I do not believe this has ever been done before. Can the NRC guarantee these waters will not percolate back up into our water supply or into our coral reefs or marine environments or national parks or my backyard? Does anyone know with complete certainty where this radioactive waste may end up? (**0027-7** [Moses, Dorothy])

Response: *The impacts on the Biscayne and Floridan Aquifers from deep well injection to the Boulder Zone will be assessed by the team and discussed in Chapter 5 of the EIS. The*

cumulative impacts of the proposed injection and other past, present, and reasonably foreseeable actions will be presented in Chapter 7.

Comment: Secretary of Interior, Stewart Udall, took the federal court -- took FPL to federal court and forced them to construct an enormous cooling canal system, closed circuit cooling canal system. It's so big it can be seen from space. And it now contains super saline water and it has now penetrated and started to move in toward the farmlands and the tree farms. (**0001-6-3** [Miller, Lloyd])

Comment: The Draft EIS should disclose/summarize results from all recent hydrologic studies and on-going assessments of the existing cooling canal system being utilized by Florida Power & Light Company's (FPL) for Turkey Point. EPA has met with National Park Service (NPS) officials from the Biscayne National Park regarding their concerns with the existing cooling canal system and its contribution to salt water intrusion in the South Miami-Dade area. NPS is concerned that the planned increased electric output from the existing units and the construction of two new nuclear reactors may exacerbate the salt water intrusion. This has raised concerns about adversely affecting local potable water supplies and the on-going Everglades restoration efforts. (**0014-5** [Mueller, Heinz])

Comment: The Draft EIS should address concerns by agencies that the canal system has created a very warm and "hypersaline" water that sinks and spreads into the Biscayne Aquifer below. (**0014-6** [Mueller, Heinz])

Comment: Water quality data summarized in Table 3.3.4-2 is not sufficient to fully assess the hydrologic characteristics of the cooling canal system. Cooling canal system is complex hydrology and includes interaction with Bay and groundwater (Section 3.3.2.1), and as such may have temporal and spatial variability. (**0023-1-67** [LaFerrier, Marc])

Comment: Data indicate that migration of the cooling canal system water is impacting adjoining surface and groundwater in the vicinity of the cooling canal system. (**0023-4-10** [LaFerrier, Marc])

Comment: [The Florida Keys Aqueduct Authority has] concerns for any potential impacts to our water supply. As the proposed project is significant in size and nature, conducting a comprehensive EIS to address key concerns and impacts to the natural resources is a necessary part of the evaluation process. It is our understanding that FPL's existing cooling water canal system, located west and south of the power plant contains high salinity concentrations. This high salinity is derived from evaporation of natural sea water discharged within these cooling water canals. As the highly concentrated seawater enters the groundwater along the bottom and the sides of the canals, the receiving groundwater becomes more saline. Without adequately operating system controls, this hydrogeological process can continue with a resultant salt load into a fresher groundwater aquifer. The higher saline groundwater with a higher specific gravity can increase the rate and amount of salt water intrusion from east to west in the Biscayne Aquifer and toward the FKAA wellfield. (**0024-1** [Walker, Tom])

Response: *The impacts of the cooling canals of the existing Turkey Point units on groundwater near the plant are in general outside the scope of the current EIS, which will assess the impact*

of building and operating proposed Turkey Point Units 6 and 7. To the extent that the building and operation of the proposed units interact with the cooling canals, the building impacts will be presented in Chapter 4 and the operations impacts will be presented in Chapter 5 of the EIS. The cumulative impacts of the proposed units and the existing units, to the extent that they impact the same resources, will be presented in Chapter 7.

Comment: We have an impact for water, we have an impact for saltwater intrusion. But don't we have that naturally? (**0002-12-1** [McHugh, John])

Comment: When I moved out to my house -- I live west of Krome Avenue -- I could drink the water right out of my well, and that was fine for over 20 years. And then about 10 years ago they decide -- I used to have 4 houses to my block, okay, about 1 square mile. Now I have about 50 or 60 houses to my block. My water supply is not the same now. The quality of water is not the same as it was 10 years ago before those houses were built. See? And it's not any difference except now there's 40 or 50 more people in the area drawing off that same aquifer that there was only 4 before. (**0002-12-6** [McHugh, John])

Comment: The agriculture out there uses massive amounts of water. Okay. When I lived out there for 20 years agriculture used massive amounts of water. We didn't have bad quality of water. Okay. The water was there, it was used, reached right under the ground. (**0002-12-9** [McHugh, John])

Response: *The impacts of saltwater intrusion on baseline water quality in the vicinity of the proposed plant will be discussed in Chapter 2 of the EIS. The impacts of the proposed action on water resources will be discussed in Chapters 4 and 5 for building and operating the units, respectively. Projects that have the potential to interact cumulatively with the operations of the proposed units and affect water resources will be discussed in Chapter 7.*

Comment: The Florida Keys primary water supply comes from a well field that is within ten miles of the proposed project. That's the well field itself. The actual aquifer that draws water into the well field is all around where we are. It's a very open, porous, surficial aquifer that's very vulnerable, very sensitive to wants and needs and with water chemistry in and about the land uses in South Dade County. Not just our well fields, there's well fields for Florida City, Homestead, and many other private and public systems in South Dade County that are within this region, some closer, some further away than ours, to the proposed project. (**0002-3-1** [Walker, Tom])

Comment: Saltwater intrusion is a real issue to the Biscayne aquifer. We've seen the saltwater front line move over time inland. We have a huge number of monitoring wells as sentinels to help keep an eye and monitor the chemistries in the Biscayne aquifer. We have seen the intrusion exacerbated by existing operation at the existing FPL facility. One of the prior speakers mentioned high density saline water from the cooling canals. And that's been studied to some degree, however, the transparency of seeing the data is not as good as we would like from the applicant. (**0002-3-2** [Walker, Tom])

Comment: We understand also that the proposal included potentially huge amounts of borrow excavation in and around the facility. Also, a huge amount of reclaimed water to be used as

cooling. Both of these elements are going to change potentially the hydrology and the water chemistry in and around the area. (**0002-3-3** [Walker, Tom])

Comment: And the final point I'll make is about saltwater impacts. One aspect of Everglades and Biscayne Bay restoration is about ecology. The other aspect is about South Florida's drinking water supply. We've had major drinking water crises. We've had development moratoriums because of a lack of drinking water. Saltwater intrusion is a major problem. Saltwater intrusion, if it contaminates drinking water is not just an environmental problem, but it's a sound growth into the future development problem for South Florida. It's not a risk that a place like South Florida that already has major droughts and already has major drinking water shortages can afford to take. So, that's an unacceptable risk. The unacceptability of that risk ought to be considered strongly. (**0002-6-9** [Grosso, Richard])

Comment: I'd like to ask that you please look at the protection of our wetlands and our national parks, and be careful of saltwater intrusion in our aquifers. It doesn't seem like that when we're going to be drilling for more fresh water that we need here, as well as filling acres, what we have wetland restorations for now. (**0002-8-4** [O'Katy, Jessica])

Comment: Water resources issues associated with this project include protection of water quality and the Biscayne Aquifer. The Biscayne Aquifer is a sole source aquifer providing high quality drinking water throughout Miami-Dade and Monroe Counties. Protection of this aquifer from contamination by chlorides and sodium from saline water sources is key to ensuring the continued ability to deliver safe drinking water from public well fields in Florida City and Homestead as well as from the Florida Keys Aqueduct Authority Navy Wells facility. The EIS should include an assessment of the potential impact of the project on water resources in this area. (**0015-2** [Espinosa, Carlos])

Comment: There is already salt water intrusion into the area to the west of TP. Not only is this a threat to the rock in the area, you cannot use rock for building if it has salt water in it, but to the water supply. TP 3&4 have already increased the salinity in the area; the cooling canals are twice the density of sea water. Any operation of TP 6&7 which will increase salinity could force the need for desalinization to produce potable water. (**0016-8** [White, Barry])

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse impacts of the Turkey Point FPL power station on groundwater (quality or quantity), please provide them. (**0022-1-1** [Reynolds, Laura])

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse impacts of operation of the Turkey Point FPL power station on the Biscayne Aquifer, in the past, currently, and in the future, please provide them. (**0022-1-21** [Reynolds, Laura])

Comment: Please state the amount of disruption to groundwater flow and the salt front that the construction of units 6&7 will make including the plant site, all support facilities, all structures, all borrow pits (including rockmines,) all fencing, all roads, all berms, all pipelines, all transmission lines, all basins, all parking lots, and all vehicle usage. (**0022-2-20** [Reynolds, Laura])

Comment: Please state the worst case scenario and the worst timeline projection, as a result of hydrologic changes from units 6&7 for salt water intrusion affecting the municipal wellfields of Miami- Dade County, the City of Homestead, the City of Florida City, the Florida Keys Aqueduct Authority, and private well users. (**0022-3-2** [Reynolds, Laura])

Comment: Please state what protective measures will be taken to prevent salt water intrusion, as a result of hydrologic changes from units 6&7, to the municipal wellfields of Miami-Dade County, the City of Homestead, the City of Florida City, the Florida Keys Aqueduct Authority, and private well users. (**0022-3-3** [Reynolds, Laura])

Comment: [T]he effect that the proposed facility would have on surface and groundwater quality, and groundwater table elevation within the C111 Basin (Model Land Area). Furthermore, any model used for evaluation of this project should be able to predict changes, if any, in the contaminant concentrations; in the water table elevations; and in the salinity wedge movement under different scenarios (baseline and post-construction conditions, for a wet, dry, and average year, etc). Models should combine groundwater with surface water and contaminant transport, and shall include the effect of the difference in densities between salt and fresh water. In addition, the area in the model should be large enough to avoid any boundary-induced bias; boundary conditions could be taken from South Florida Water Management District regional models. EPA authorized models, such as MODFLOW, MODPATH, and FEMWATER should be considered for use in this study. Another possible model would be the FEFLOW, which combines the groundwater contaminant transport (MODFLOW and MODPATH capabilities) with the two density fluids wedge salinity difference (FEMWATER capability). (**0023-1-14** [LaFerrier, Marc])

Comment: [A] DERM approved hydrologic study and its results shall be provided that evaluates all impacts to surface and groundwater. This study should include consideration of seasonal differences in groundwater flow cited in Section 3.3.3.2 and determine the extent to which these differences are due to current operations at Turkey Point.
(**0023-3-47** [LaFerrier, Marc])

Comment: The FKAA requests that additional ground water modeling and monitoring be presented at the current salt/fresh water interface of the Biscayne Aquifer. As you see in the attached ground water monitoring plan, a trend has been shown and interface presented in collaboration with the USGS and Miami-Dade County to demonstrate the current interface location and its movement. For the EIS, modeling of potential changes to the interface position of this salt/fresh interface resulting from the proposed impacts from the construction and operation of the facility is requested. (**0024-3** [Walker, Tom])

Comment: A robust, peer-reviewed hydrologic modeling analysis is essential to fully incorporate regional and site specific conditions in the vicinity of Turkey Point. The Biscayne Aquifer has a unique lithology and consists of a karst substrate with very high transmissivity. This surficial aquifer is hydraulically connected to nearby man-made surface water bodies, which has a profound impact on model construction. FPL's current groundwater model fails to simulate actual or planned conditions that include: seasonal and temporal variability, hypersaline plume migration, Biscayne Aquifer heterogeneity, and CERP project

implementation. NPS does not believe the COL sufficiently analyzes or evaluates these hydrological and estuarine issues. (**0025-2-1** [Kimball, Dan] [Lewis, Mark])

Comment: Given the sensitive designation of the adjacent surface water body, Biscayne National Park, a horizontal pilot test, including a tracer study, should be considered as a critical design feature and would be more representative of actual full-scale RCW operation than a limited scope vertical pump test. (**0025-3-1** [Kimball, Dan] [Lewis, Mark])

Comment: The new hypersaline plume delineation and hydrogeologic data collected as part of the well drilling and logging for the Uprate Project for Turkey Point Units 3 & 4 should be incorporated in the groundwater modeling and planning for evaluation of the effects of the RCWs. (**0025-3-10** [Kimball, Dan] [Lewis, Mark])

Comment: The groundwater model should reflect implementation of CERP project features. (**0025-3-11** [Kimball, Dan] [Lewis, Mark])

Comment: The Biscayne Aquifer is an unconfined surficial aquifer that has a fragile karst macroporosity substrate. A comprehensive geological survey should be performed for the proposed locations of the RCWs (Turkey Point peninsula) to identify voids or cavities in the aquifer substrate. Soil borings that were performed as part of the 2009 pump test are not aerially sufficient to represent a known dual porosity karst limestone aquifer. (**0025-3-12** [Kimball, Dan] [Lewis, Mark])

Comment: Contingency plans should be established should a karst fracture occur during the construction or operation of the RCWs. (**0025-3-13** [Kimball, Dan] [Lewis, Mark])

Comment: Even based on the rather dubious groundwater modeling provided, FPL is proposing to remove 8% of the total withdrawal from the aquifer, which equals approximately 10 million gallons of groundwater daily. Pursuant to the Resolution (No. Z-56-07, conditions 4 & 5) of the Board of County Commissioners of Miami-Dade County, FPL shall not apply for any water withdrawals from the Biscayne Aquifer as a source of cooling water for the proposed facilities, and shall use reclaimed or reuse water to the maximum extent possible. This consumptive water use conflict must be resolved. (**0025-3-14** [Kimball, Dan] [Lewis, Mark])

Comment: The effects of dewatering on the Biscayne Aquifer (e.g., hypersalinity plume migration, salt water intrusion, etc.) during plant construction were based on the dubious current model, and warrants further evaluation. (**0025-3-16** [Kimball, Dan] [Lewis, Mark])

Comment: Drilling through karst limestone can cause a bay bottom collapse or a cavity could be encountered that would be significantly closer to the surface than anticipated. A structural collapse due to macroporosity features of the Biscayne Aquifer (i.e., dual porosity) or drilling through existing touching-vug preferential flow zones or large karst features would alter the potential velocity of flow through the RCW. Flow in this case would be substantially higher than anticipated. These types of macrokarst features have been found in drilling the wells for the Units 3 & 4 Uprate project, and should be reflected in the groundwater model. (**0025-3-2** [Kimball, Dan] [Lewis, Mark])

Comment: The groundwater model (FSAR Section 2.4-12 Appendix 2CC) utilizes a constant density groundwater model with a reference value of seawater. Average salinity values are not appropriate since Biscayne Bay is an estuarine environment with seasonal salinity variability, which is not equivalent to an ocean salinity pattern. In addition, shallow groundwater salinity observed during the 2009 pump test in MW-I SS (20 avg psu) is not representative of seawater. Also, the groundwater in the vicinity of the Industrial Waste Facility exhibits hypersaline concentrations (68 avg psu). A groundwater salinity range of 48 psu on average is not indicative of a constant density groundwater profile. The constant density assumption cannot adequately determine the effects of the hypersaline plume eastern migration and bay salinity impacts due to the operation of the RCWs and dewatering activities. (**0025-3-3** [Kimball, Dan] [Lewis, Mark])

Comment: A coupled surface water and groundwater hydrologic model, including a separate solute transport module, is necessary to fully evaluate all the associated impacts to Biscayne Bay. (**0025-3-4** [Kimball, Dan] [Lewis, Mark])

Comment: The model input parameters (e.g., hydraulic conductivity, boundary inflow values, etc.) should be based on site specific conditions and data, when available, and be consistent with the calibrated results. Please note that the model calibration results in Table 2CC-205 of the COL, FSAR, Part 2, do not correspond to the calibration results provided in the State of Florida SCA. This discrepancy between the two applications should be rectified. Furthermore, the hydraulic conductivities listed in Table 2CC-205 for the different stratigraphic units of the aquifer do not appear to correspond to site-specific hydraulic conductivity values obtained from on-site pump tests nor published values. This flaw seriously affects the results and validity of the groundwater model. (**0025-3-5** [Kimball, Dan] [Lewis, Mark])

Comment: The margin of error associated with the groundwater model simulation results should be provided. This information is necessary to ascertain the value of the model and how realistic the model output is. 5. Seasonal variability (i.e., rainfall, water levels, surface water flow, salinity, etc.) is inherent to South Florida and cannot be sufficiently reflected in a steady state model. (**0025-3-6** [Kimball, Dan] [Lewis, Mark])

Comment: There are significant temporal differences between the cooling canals, Biscayne Aquifer, and the bay that will affect the water source pathway for the RCWs, which cannot be evaluated with a constant density, steady state model. (**0025-3-7** [Kimball, Dan] [Lewis, Mark])

Comment: An equivalent porous media value was utilized for the groundwater model, which does not reflect the Biscayne Aquifer. The Biscayne Aquifer is defined as a heterogeneous aquifer with documented dual porosity and preferential flow pathways. (**0025-3-8** [Kimball, Dan] [Lewis, Mark])

Comment: Should a preferential subsurface flow pathway be encountered through an RCW lateral, the water source intake will originate from the flow pathway of least resistance. This scenario should be accounted for in the groundwater modeling. (**0025-3-9** [Kimball, Dan] [Lewis, Mark])

Comment: Salt water intrusion is already a problem on our aquifer, anymore rock mining and water usage will cause further degradation of our fresh water supply. (**0027-6** [Moses, Dorothy])

Comment: Turkey Point is hastening saltwater intrusion into South Miami-Dade well fields that supply water to our nearby communities. (**0031-7** [De Villiers, Elena])

Comment: The SFWMD recommends that the following issues be addressed in the Environmental Impact Statement: Radial Wells and Construction Dewatering Withdrawals at Power Plant Site - The potential for adverse impacts to regional water resources, including public water supply wellfields, Biscayne National Park, the Biscayne Bay Aquatic Preserve, and the Florida Keys National Marine Sanctuary from induced seepage from the Turkey Point cooling canal system as a result of cumulative impacts, including additional loading from construction dewatering/wastewater discharges and runoff from stored muck, and reduced head in the vicinity of the power block construction dewatering withdrawals and the radial well withdrawals. The unlined cooling canal system contains hypersaline water overlying the highly permeable Biscayne Aquifer. The salinity of cooling canal system water is significantly greater than natural groundwater salinity in the area and the waters within adjacent Biscayne Bay; therefore, the presence of density driven seepage upgradient (to the west) and downgradient (to the east and south) is likely. Monitoring wells up to approximately three miles west of the cooling canal system have encountered groundwater with chemical constituents indicative of cooling canal system water, including hypersalinity and/or tritium. Constituents within the cooling canal system that have or may have the potential to degrade water resources include hypersaline water, radiological isotopes, nutrients, or other compounds that may be discharged into the cooling canal system from plant operations and/or muck storage adjacent to the cooling canal system. (**0032-11** [Golden, James])

Comment: Ground Water Modeling Summary - *Conceptualization and Configuration:* The entire model domain is assumed to be constant density and saline. Both of these assumptions are inconsistent with other submitted documentation. The simulation bounds of the model are neither all saline nor are they of the same density. FPL has asserted that the assumption is valid for the type of analyses (pump induced drawdown of flux) conducted. While this may be possible in the narrowest interpretation, it is likely that impacts of density dependent flow or temperature induced buoyancy may dominate in some areas; however, the modeling provided does not afford the SFWMD or FPL the opportunity to examine these situations. Also, it is unusual for a system that is made up of fresh, brackish, salt and hyper-saline water to be generically represented as sea water. While we understand an equivalent fresh water head was used, the impacts of this representation on gradients, stage (heads), simulated drawdown, and flows, as well as conclusions derived from these, need to be further explored and justified. (**0032-29** [Golden, James])

Comment: Ground Water Modeling Summary - *Boundary Conditions*: By utilizing a steady state simulation, the impact of selected boundary conditions will propagate over the entire model. By definition, a steady state is reached when all hydrologic drivers, including those specified at the boundaries, reach equilibrium. This assumption makes the specification of the model boundaries, such as head in the constant head cells that represent Biscayne Bay, very crucial. It is understood that for permitting purposes, non-exact simulations may be acceptable, if they are conservatively estimated; however, a non-conservative estimate (e.g., the water level

in Biscayne Bay) could result in under-estimation or over-estimation of pumping rate necessary to achieve necessary drawdown during dewatering. Similarly, a non-conservatively selected stage in Biscayne Bay could overestimate the contribution of this boundary (source) to the radial collection well system. It is typical in these scenarios for extensive sensitivity analyses to be performed to establish the sensitivity of the outcome or conclusions, to erroneous or non-conservatively specified boundary conditions. FPL has applied an average value to the boundary representing Biscayne Bay. This may mask tidal or seasonal trends and is unlikely to represent the critical condition for dewatering or assessing the impacts of dewatering. (**0032-30** [Golden, James])

Comment: Ground Water Modeling Summary - *Parameterization:* In selecting model parameters and applying them to the model cells, FPL has used a homogeneous representation of aquifer parameters in a highly heterogeneous aquifer system. This representation is, along with some unusual layering in the model construct, suspect, and must be tested to ensure that it does not negate conclusions drawn from the model. Specific concerns include the representation of the vertical hydraulic conductivity of the top two layers in the model (1 to 1 ratio for Kh to Kv), the representations of those layers in locations where canals and other surface features intersect the conceptual (or physical) tops of the model layers, as well as the representation of the vertical connectivity in layers that were split for predictive simulations following the calibration. It is important for FPL to demonstrate that the conclusions and determinations based on modeling remain unchanged, with more correct representation of model parameters. (**0032-31** [Golden, James])

Comment: Ground Water Modeling Summary - *Calibration:* The model was calibrated to the results of on-site pump tests (quantitative) and to regional groundwater gradients and flow directions (qualitative). Both calibrations were based on steady state simulations. FPL justified these simulations by the rapid response of the system to the volumes extracted during the pump test. This was further justified by the intent to apply the tools also in steady state. While these justifications are understood, the calibration remains insufficient and does not represent stresses to the system similar in magnitude to the intended applications. In addition, the conditions used for calibration do not demonstrate the impact of the effect of boundary conditions on the simulation results. Lastly, the model does not include important on-site operations or features present during the pump test that could contribute to the observed data to which the model is calibrated. The foregoing notwithstanding, a review of the calibration results presented show a number of situations where multiple monitoring wells show exactly the same, response in the model while they vary in the measured data. This may be suggestive of impacts of a specified boundary or inadequately tuned model parameter. If the variability that is missing is important to the required outcome from the model, then the model may not be adequately calibrated for use. (**0032-32** [Golden, James])

Comment: The SFWMD recommends that the following issues be addressed in the Environmental Impact Statement: The adequacy of the ground water modeling submitted by FPL. (**0032-7** [Golden, James])

Comment: The SFWMD recommends that the following issues be addressed in the Environmental Impact Statement: Radial Wells and Construction Dewatering Withdrawals at Power Plant Site - The potential for the proposed withdrawals to exacerbate saline water

intrusion and ground water contamination due to the existence of preferential flow paths within the Biscayne aquifer. (**0032-8** [Golden, James])

Response: *The impacts of the proposed action on water resources, specifically the potential impacts to water availability and water quality in the Biscayne Aquifer, will be assessed by the review team and presented in Chapters 4 and 5 of the EIS for building and operating proposed Turkey Point Units 6 and 7, respectively. Modeling data provided by the applicant will be reviewed and evaluated in the course of developing this assessment. Cumulative water-use and water-quality impacts will be addressed in Chapter 7.*

Comment: FPL, just last year, negotiated a new groundwater monitoring plan with the South Florida Water Management District. However, there were compliance questions from the initial groundwater monitoring plan that had been issued 20 years ago, and there was, I think, a lack of some transparency of looking at the groundwater data. So I would request that that data be sought and included in your evaluation in the scoping process. (**0002-3-5** [Walker, Tom])

Comment: We understand that the FPL has negotiated a new ground water monitoring program with the South Florida Management District (SFWMD.) Unfortunately, the prior ground water monitoring plan has been questioned and from what we have understood, had compliance issues which were never quite resolved. Subsequently, a new monitoring plan was laid out and approved by the SFWMD; yet, much of the historic information may provide important trending information which would be helpful for the EIS to evaluate. We request that the NRC obtain the previous ground water monitoring information relative to these cooling canals and analyze their past and present impacts to the ground water in the adjacent aquifer. (**0024-2** [Walker, Tom])

Response: *The environmental monitoring data collected at the existing units for the current baseline water resources in the affected environment, including water quality and quantity, will be discussed in Chapter 2 of the EIS. Chapters 4 and 5 will include descriptions of environmental monitoring to be conducted at the units during building and operating, respectively. Cumulative impacts will be assessed in Chapter 7. The EIS will include citations for documents used in its preparation.*

Comment: Please state the distance between the water management feature(s) and the salt front at the land's surface and the distance between the water management feature(s) and the salt front at the base of the Biscayne Aquifer. (**0022-3-8** [Reynolds, Laura])

Comment: Please publish a vertical profile of the land showing 1. the surface of the water management feature(s), 2. the depth of the water management feature(s), 3. the location of the current salt front at the land surface, and 4. the location of the current salt front at the base of the Biscayne Aquifer. (**0022-3-9** [Reynolds, Laura])

Response: *These comments refer to the distance between proposed Turkey Point Units 6 and 7s water-management feature and the salinity intrusion front in the Biscayne Aquifer. A description of the affected environment, including local groundwater flow, water quality, and quantity, will be presented in Chapter 2 of the EIS. The plant layout, including the detailed locations of facilities and design specifications for the units, will be provided in Chapter 3.*

Comment: Miami-Dade County has previously provided the U.S. Nuclear Regulatory Commission with a copy of our comments on the State of Florida Site Certification Application for the Turkey Point Power Plant. The County would like to point out one discrepancy between the state and federal applications, the Florida Power & Light owned fill source was removed from the state application but remains part of the federal application. The proposed fill source may adversely impact groundwater, destroy wetlands and advance salt water intrusion closer to wellfields. Additional details on these concerns are provided in the attached table summarizing our initial comments on the state application. This table, as well as, the documents previously submitted to the NRC should be considered as part of the record for the scoping process. (**0023-1-1** [LaFerrier, Marc])

Response: *The NRC process is to review the COL application and prepare an EIS based on the actions proposed in the application. Information to be used during the review will include documents obtained from State and Federal agencies, including the SCA to the extent necessary to characterize the Turkey Point site. The FPL-owned fill source remains in the COL at this time and a review of the environmental impacts of obtaining fill material will be presented in Chapter 4 of the EIS.*

Comment: The application proposes to dewater up to 26 MGD of groundwater by discharging it to the cooling canals. Pursuant to Condition No. 15 of the Unusual Use Approval Resolution Z-56-07, a DERM approved hydrologic study is required. The study results are required to evaluate all impacts to surface and groundwater, including but not limited to all dewatering activities. The hydrologic study should include, but not be limited to providing data and modeling to show how the existing groundwater plume under the Cooling Canal System would respond to the dewatering activities. (**0023-1-2** [LaFerrier, Marc])

Comment: Sufficient information is not provided to make a determination of dewatering impacts. Please provide a description of all required dewatering activities and the techniques that will be used to ensure that all surface and groundwater quality standards will be met. (**0023-1-3** [LaFerrier, Marc])

Response: *These comments refer to the SCA submitted to the State of Florida by FPL, but they indicate an interest in the potential impacts of the proposed units on water quality and hydrology from the discharge of dewatering flows to the cooling-canal system during plant construction. The review team will assess the impact of proposed Turkey Point Units 6 and 7s dewatering at the site on water resources. The dewatering effluent produced by the proposed units will be described in Chapter 3 of the EIS. The impacts of building the proposed units on water resources will be presented in Chapter 4. Cumulative impacts will be addressed in Chapter 7. Modeling data provided by the applicant will be technically evaluated in the course of developing the EIS.*

Comment: Disposal of the facility's wastewater is proposed via deep well injection into the boulder zone. The application does not include an evaluation of the technical feasibility for reuse of the wastewater discharge for the benefit of the Biscayne Bay Coastal Wetlands Project as required pursuant to Z-56-07. (**0023-3-38** [LaFerrier, Marc])

Response: *This comment refers to the SCA submitted to the State of Florida by FPL, but it indicates an interest in alternative uses of blowdown water from the proposed units. Alternatives to deep-well injection for plant effluent discharges will be described in Chapter 9 of the EIS.*

Comment: [T]he application does not provide sufficient detail on what standard of reclaimed water quality is required. This information is necessary to evaluate the application (**0023-1-29** [LaFerrier, Marc])

Response: *This comment refers to the SCA submitted to the State of Florida by FPL, but it indicates an interest in the quality of reclaimed water to be used as cooling water at the proposed units. The water quality of the reclaimed water will be described in Chapter 3 of the EIS.*

Comment: Conditions outlined in Zoning Resolution Z-56-07 must be met to achieve land use/zoning consistency. This resolution stated that no water will be withdrawn from the Biscayne Aquifer (Condition 4) and that a hydrologic study (Condition 15) will be performed. The radial well component does not demonstrate consistency with these two conditions; therefore this component will be subject to a land use/zoning consistency determination. (**0023-1-31** [LaFerrier, Marc])

Comment: Selection of potential locations, idealized designs, number of wells, and even the pipe sizes of the radial lines of the collector wells should be based on hydrogeologic data within the areas Biscayne Bay that the wells will tap. (**0023-1-32** [LaFerrier, Marc])

Comment: Site specific aquifer characteristics have not been made available. (**0023-1-33** [LaFerrier, Marc])

Comment: Lithologic descriptions are contradictory. The observations from the site subsurface investigation (Section 3.3.2.2) contradict expectations that almost all the water withdrawn by the radial collector wells would be recharged from the Bay (Section 3.3.4.1). Therefore additional information is necessary to evaluate this aspect of the proposal. (**0023-1-34** [LaFerrier, Marc])

Comment: [D]etermine the impact of the radial collector well system on the fate and transport of the groundwater plume associated with the cooling canal system, the potential for and effect of the recharge of the radial collector well system through horizontal preferential flow zones in the aquifer, the impact of the radial collector well system on salt intrusion. (**0023-1-35** [LaFerrier, Marc])

Comment: [N]o information was found in the application discussing potential effects of inducing ground water flow towards the proposed withdrawal wells. (**0023-1-38** [LaFerrier, Marc])

Comment: Neither preferential vertical nor horizontal stratigraphic flow directions have been established. Vertical hydraulic conductivity data is not presented in the application, but it is needed to properly evaluate how the horizontal screens installed in the Fort Thompson Formation 30 to 35 feet below the shallow bay bottom are expected to preferentially draw water from the less transmissive Miami Limestone above instead of from the much more transmissive Fort Thompson. (**0023-1-39** [LaFerrier, Marc])

Comment: Cones of influence are not defined and aquifer pump-test data has not been presented to properly evaluate hydrologic conditions under which the collector wells would be operated. Neither has there been any data presented to indicate the potential cone of depression that pumping more than 120 million gallons a day from a wellfield located along the shoreline would have on the movement of the salt front line. (**0023-1-40** [LaFerrier, Marc])

Comment: The applicant has not provided sufficient geologic, hydrologic and water quality data to evaluate the application. (**0023-1-41** [LaFerrier, Marc])

Comment: The applicant has not provided sufficient information to evaluate the mixing chamber model that was used to project impacts from the radial collector wells. (**0023-1-42** [LaFerrier, Marc])

Comment: Adequate hydrogeologic data have not been presented and the application does not include sufficient information to determine whether the proposed withdrawals from the radial collector wells would meet the requirements of Section 24-43.2 Miami-Dade County Code. Selection of potential locations, idealized designs, number of wells, and even the pipe sizes of the radial lines of the collector wells should be based on hydrogeologic data within the areas under Biscayne Bay that the wells would tap. (**0023-1-44** [LaFerrier, Marc])

Comment: Please provide adequate analysis in support of the conclusion made that the Biscayne Aquifer is not affected by the Radial Collector wells. A fully three dimensional mathematical model should be used to determine the boundary conditions (influence cones) of the proposed radial collector well. (**0023-1-47** [LaFerrier, Marc])

Comment: Application does not adequately demonstrate that the proposed radial collector wells do not violate Condition 4 of Z-56-07 which prohibits withdrawal from the Biscayne Aquifer. (**0023-1-66** [LaFerrier, Marc])

Comment: Data presented for Groundwater Impact assessment is not sufficient. Visual MODFLOW data files are not provided for assessment. Not enough data provided to assess statement that radial collector wells are substratum collectors of saltwater that will recharge from below Biscayne Bay. The applicant states that almost all the water withdrawn by the proposed radial collectors will be recharged from the Bay; however, no data to support this statement is provided in the application. The applicant shall provide all relevant data relating to recharge of the Biscayne Aquifer that would be induced by operation of the radial collectors. Pursuant to Condition No. 4 of the Unusual Use approved but he BCC through resolution Z-56-07, FPL shall not apply for any withdrawals from the Biscayne Aquifer as a source of cooling water for the proposed facilities. (**0023-1-68** [LaFerrier, Marc])

Comment: The radial wells are located so as to draw from the easterly groundwater flow. Please resolve the apparent conflict between the location of the wells and the water from which they are drawing and Condition 4 of Z-56-07, which prohibits withdrawal from the Biscayne Aquifer. (**0023-1-70** [LaFerrier, Marc])

Comment: Condition 5 of Z-56-07 requires FPL to analyze the potential use of marine water as a secondary source of cooling water. Under this scenario, a directional bore would be used to

construct a pipeline under the Florida Keys National Marine Sanctuary or under Biscayne National Park in order to obtain salt water from the ocean with limited or no permanent impacts to benthic resources. Provide a detailed analysis that documents the reasons why this potential secondary source of cooling water was not selected. (**0023-3-40** [LaFerrier, Marc])

Response: *These comments refer to the SCA submitted to the State of Florida by FPL, but they indicate an interest in impacts on the Biscayne Aquifer below Biscayne Bay from the withdrawal of cooling water using radial collector wells (RCW) at proposed Turkey Point Units 6 and 7. The impacts of these units consumptive use of water on local and regional water resources, including the Biscayne Aquifer, will be presented in Chapters 4 and 5 of the EIS for building and operating, respectively. Cumulative water-use impacts will be addressed in Chapter 7 and cooling-water alternatives in Chapter 9.*

Comment: The application does not provide information on how the water management project would operate, the water source for the feature, any related infrastructure, projected water quality of the completed feature, or information on best technology regarding a liner or other hydrologic isolation from surrounding ground and surface waters, the hydrologic impact of the feature on adjoining areas. (**0023-3-13** [LaFerrier, Marc])

Response: *Available information about the water-management feature will be provided in Chapter 3 of the EIS. The impacts of the water-management feature on water resources will be presented in Chapters 4 and 5 for building and operation, respectively, based on information about the affected environment provided in Chapter 2. Cumulative impacts will be presented in Chapter 7.*

Comment: And that's what they're trying to do on a couple of the different designs, is to pump the water back down into the ground. There have got to be some options. We have too much knowledge and too much in our industry to overcome these minor problems.
(**0002-12-10** [McHugh, John])

Response: *The comment refers to the discharge of effluent from the plant, specifically the effluent sourced from reclaimed water to be used as cooling water at proposed Turkey Point Units 6 and 7. The proposed units effluent discharge locations, quantity, and quality will be described in Chapter 3 of the EIS. Alternative discharge locations will be discussed in Chapter 9.*

Comment: FPL recently proposed a restriction on using the RCWs to 90 days per year; this proposed restriction is not mentioned in the COLA. Such inconsistencies between the two separate applications should be resolved and the State of Florida SCA and NRC COL applications should be fairly uniform. (**0025-1-5** [Kimball, Dan] [Lewis, Mark])

Response: *The NRC process is to review the COL application, including revisions provided by the applicant, and prepare an EIS based on the actions proposed in the application. Information to be used during the review will include documents obtained from State and Federal agencies, including the SCA, to the extent necessary to characterize the Turkey Point site. A review of the environmental impacts of using RCWs to obtain cooling water will be presented in Chapter 5 of the EIS.*

Comment: To add insult to injury, these 2 dangerous nuclear plants are proposed to be over/around the only natural aquifer we have that provides clean water to millions of people! (**0028-2** [DiNuzzo, Laura])

Response: *The impacts of building and operating proposed Turkey Point Units 6 and 7 on the sustainability of local and regional water resources will be presented in Chapters 4 and 5 of the EIS, respectively. Cumulative water-use impacts will be addressed in Chapter 7.*

Comment: The CEIS should include, at minimum, an analysis of the water quality for the source water for each dewatering project, including radionuclides such as tritium. (**0023-1-4** [LaFerrier, Marc])

Response: *The CWA designated the Environmental Protection Agency (EPA) as the Federal agency with general responsibility for effluent discharges to the nation's waters. In Florida, the EPA has delegated this responsibility to the Florida Department of Environmental Protection (FDEP). Therefore, in Florida, the FDEP is the primary regulatory authority over water quality. While the NRC only regulates radiological effluents, the NRC does have the responsibility under NEPA to assess and disclose the expected impacts of the proposed action on water quality. The assessment of the radiological and nonradiological impacts on water quality from the operation of proposed Turkey Point Units 6 and 7 will be presented in Chapter 5 of the EIS.*

Comment: The proposed radial collector wells would be located within or adjacent to a groundwater plume emanating from FPL's Cooling Canal System, which contains high levels of chlorides. It also contains tritium, which may be used as a tracer. In addition, portions of this plume contain heated water, although underground directional travel of the heated water has not been established. No information regarding the delineation of this plume is contained within the application and the extent to which this plume would be affected by the proposed groundwater withdrawals is not documented. (**0023-1-37** [LaFerrier, Marc])

Response: *The impacts of the RCWs with respect to building and operating proposed Turkey Point Units 6 and 7 on Biscayne Bay and adjacent lands are part of the overall EIS analysis. The results of the analysis of impacts of proposed Turkey Point Units 6 and 7 operations on water quality, ecology, and aesthetics will be presented in Chapter 5 of the EIS, and the results of cumulative impact analyses will be presented in Chapter 7.*

Comment: The proposed project requires a significant amount of borrow material to build the platform for the new reactors. Such volumes of borrow in high quantities requires significant movement of material in and around the aquifers in such low lying areas as South Miami-Dade County. Such excavation can disturb the water resources. The EIS should do a quantification of the amount of material required and its potential impact to see if in fact such borrow material can be moved or can be excavated in the vicinity of the existing power plant and the FKAA well field. If not, material must be obtained elsewhere where such impacts are not detrimental to local well fields. (**0024-5** [Walker, Tom])

Response: *Available information about the fill source will be provided in Chapter 3 of the EIS. The impacts of obtaining fill material will be presented in Chapter 4; and the cumulative impacts of the proposed action by FPL to build and operate proposed Turkey Point Units 6 and 7, along*

with other past, present, and reasonably foreseeable future actions by other agencies, will be presented in Chapter 7.

Comment: A major area of interest is whether operation of the radial collector wells would cause the karst Biscayne Aquifer to fracture (frac out), thereby altering the salinity of the Biscayne Bay and affecting the area's fish and wildlife resources. Staff from Florida Power & Light (FPL) believes that these radial collection wells will not be used for a substantial part of the time that the plant would be in operation, and consequently taken a conservative approach by modeling a scenario during which the radial collector wells would inject water laterally constantly. Other agencies participating in the review and whose staff has the expertise to test the model are doing so, and we are waiting for the results in order to determine the extent to which we may be concerned about the possibility of frac out actually occurring. (**0018-1** [Poole, Mary Ann])

Comment: Concerns still remain regarding unknowns related to the Radial Collector Well (RCW) System including, but not limited to: possible impacts to the Bay including benthic flora and fauna; salinity; and possible impacts of the radial collector wells on the freshwater input to the bay, flora and fauna. These issues and concerns will require further review and discussion. (**0020-1** [Mulkey, Cindy])

Comment: The operation of the RCWs would result in hydrologic impacts, including ... surface water, on Biscayne Bay due to geological disturbances, resulting in water volume and quality alterations ... [A] large portion of the nearly 124 million gallons of Biscayne Bay water will originate from within Biscayne National Park boundaries, which is a protected water body. (**0025-1-13** [Kimball, Dan] [Lewis, Mark])

Comment: The Florida Department of Environmental Protection (FDEP) is requiring a revised groundwater model due to many deficiencies, including the inability to effectively simulate impacts to Biscayne Bay; as a result, the SCA remains incomplete to date. Thus, a revised groundwater model is pending submittal to the State of Florida for the SCA process. The revised SCA groundwater model should be consistent with the groundwater model submitted as part of the COLA. A model that represents the Biscayne Aquifer and site specific hydrologic features is necessary to fully evaluate the impacts of the operation of the radial collector wells (RCWs) on the Biscayne Bay nearshore ecosystem function (see Attachment 1.B.). Therefore, the COLA groundwater model results that claim 92 to 100 percent of the intake water for the RCWs comes from the bay has not been substantiated. (**0025-1-4** [Kimball, Dan] [Lewis, Mark])

Comment: Other specific issues NMFS recommends for evaluation in the EIS or EFH assessment: 1.a *Radial wells*. Impacts to EFH associated with radial well construction and operation within Biscayne Bay should be fully evaluated. The evaluations should include detailed HDD routes and examinations of the potential for frac-outs. Monitoring and mitigation measures for frac-out detection and clean-up will also be needed. (**0033-5** [Croom, Miles])

Comment: Other specific issues NMFS recommends for evaluation in the EIS or EFH assessment: 1.b *Radial wells*. Impacts to EFH associated with radial well construction and operation within Biscayne Bay should be fully evaluated. The evaluations should include

detailed explanations of the circumstances under which radial wells would be required and at what capacities. (**0033-6** [Croom, Miles])

Comment: Other specific issues NMFS recommends for evaluation in the EIS or EFH assessment: 1.d *Radial wells*. Impacts to EFH associated with radial well construction and operation within Biscayne Bay should be fully evaluated. The evaluations should include a more clear explanation of how use of the radial wells will affect salinity, including identification of the geographic area that would be affected and how that area would change seasonally and under various environmental conditions (such as tides and prevailing wind conditions). This analysis of effects on water quality also should include pH and temperature.
(**0033-8** [Croom, Miles])

Response: *These comments indicate an interest in impacts on the Biscayne Aquifer below Biscayne Bay and on the Bay itself from the withdrawal of cooling water using RCW at the proposed units. The impacts of the plant's consumptive use of water on local and regional water resources, including the Biscayne Aquifer, will be presented in Chapters 4 and 5 of the EIS for building and operating, respectively. Cumulative water-use impacts will be addressed in Chapter 7 and cooling water alternatives in Chapter 9.*

D.1.9 Comments Concerning Ecology – Terrestrial

Comment: I was very disappointed to hear that the U.S. Army Corps of Engineers so casually referred to that almost all nuclear power plants are placed near wetlands. That, alone, to me is a concern. This one, too, would be the same. (**0001-11-3** [Amor, Valerie])

Comment: They [FPL] may need 90 million gallons of cooling water a day for these two new units. One plan would take that from a big sewage treatment plant to be built 25 miles up the road. How would they get 90 million gallons of water a day down here? That takes a big pipe and maybe some pumping stations. They're not going to get permission to run that down through Biscayne Bay so they'll have to put it in the wetlands, and there go the wetlands next to the Bay. (**0001-6-4** [Miller, Lloyd])

Comment: Besides fresh water loss the loss of wetlands is the other major thing we're trying to fix there. The numbers of wetland loss here are just astronomical, and they're not something that we really ought to be considering in modern 2010 times anymore.
(**0002-6-5** [Grosso, Richard])

Comment: The planned expansion of Units 6&7 of Turkey Point requires the permanent destruction of untouched wetlands just off of the Biscayne Bay national park regions.
(**0007-1** [Burris, Jessica])

Comment: In the West Preferred Corridor, additional access pads (approximately 79-170 ft long) are proposed east of the power line poled structures that would provide access from the structure pads to the existing L-31 North Levee Road (Figures 5A-5B). Additional wetland filling would be required to construct the proposed pads beneath the power line poled structures. Construction of the access roads/pad would require filling of more than 100 acres of wetlands within the West Preferred Corridor (that is currently within Everglades National Park) per the COLA/SCA. A perpetual 90 ft vegetation easement is proposed to extend from the westernmost

portion of the West Preferred Corridor into ENP to allow FPL to manage non-native vegetation. (**0025-3-31** [Kimball, Dan] [Lewis, Mark])

Comment: Vegetation in the ENP portion of both transmission line corridors identified by FPL consists primarily of high quality, long and short hydroperiod native marsh and prairie communities. Direct impacts of the construction and maintenance of power line infrastructure on the natural abundance and distribution of these native plant communities need to be evaluated. 2. Limited information on the presence of state listed threatened and endangered plant species exists for either corridor identified by FPL. Nonetheless, preliminary surveys of the Western Preferred Corridor resulted in the identification of at least one state listed endangered plant species within the boundary of the corridor. Additional survey work is needed and the results of that survey work should be used to evaluate impacts on threatened and endangered plant species in both corridors. 3. The proposed exotic vegetation management easement associated with the Western Preferred Corridor will result in the modification and/or of native plant species by mechanical or chemical means within boundaries of ENP. The impacts of these actions on individual species native plant community composition need to be considered in this evaluation. 4. Soil disturbance and modification of natural elevations in either corridor identified by FPL has the potential to introduce new invasive plant species or exacerbate existing invasive plant species populations. These impacts need to be evaluated. (**0025-3-34** [Kimball, Dan] [Lewis, Mark])

Response: *The impacts on wetlands from building proposed Turkey Point Units 6 and 7, including water supply pipelines and transmission corridors, will be addressed in Chapter 4 of the EIS and the impacts of plant operation will be addressed in Chapter 5.*

Comment: I had fished, hunted and camped exactly where the power plants are before they were built. I could tell you, beyond a doubt right now, there's probably, in most instances, as many fish, deer, and other types of wildlife in that area now as there were when I was a kid. That hasn't been impacted all that greatly. (**0002-13-7** [Simpson, Roce])

Response: *The impacts of building and operating proposed Turkey Point Units 6 and 7 on fish and wildlife will be evaluated in Chapters 4 and 5 of the EIS, respectively.*

Comment: The second area of concern, of course, is Everglades impact. The expansion will impact hundreds of acres of wetlands which is contradictory to our very expensive and very important effort to restore the Everglades right now. (**0001-7-3** [MacLaren, Kaitlin])

Comment: It [the new transmission lines] also will create a corridor for invasive species; it will disrupt the water flow; birds run into power lines all the time, electrocutions, collisions. (**0002-14-10** [Schwartz, Matthew])

Comment: The largest percentage of this land, 61% of the 38,607 acres evaluated for this project are composed of wetlands bordering Biscayne National Park, Biscayne Bay Aquatic Preserve, Homestead Bayfront Park, the Model Lands Basin, and the Everglades Mitigation Bank as openly noted in the NRC environmental report concerning this expansion. The destruction of wetlands in the surrounding areas of national reserves has possible drastic results on the reserved area. In addition to destroying the ecological foundation for wildlife in the

affected region itself, the permanent destruction of everglade wetlands surrounding the reserve equally affects the ecology of areas designated to remain untouched by U.S National Park service and the U.S department of the interior. (**0007-3** [Burris, Jessica])

Comment: The Draft EIS needs to fully address the alternative transmission line corridors and the environmental effects it may have on Everglades National Park. (**0014-15** [Mueller, Heinz])

Comment: The Turkey Point facility is located within the southeastern saline Everglades, which is a large, contiguous wetland system that consists of both freshwater and coastal wetlands. This area is strategically located in the watershed for the Florida Keys National Marine Sanctuary, Biscayne National Park, the Crocodile Lake National Wildlife Refuge, and the State of Florida's Card Sound Aquatic Preserve. In addition, the proposed transmission line corridor bisects this wetland system and continues westward into Everglades National Park, as well. This region provides habitat for many plant and animal species that are protected at the county, state and/or federal level, including the wood stork, Everglades snail kite, American crocodile, Florida panther, and Eastern indigo snake, among others. It is a known stop-over for migratory songbirds and waterfowl, and the proposed plant site provides significant shorebird habitat, as well. The EIS should also include an assessment of the impacts of the project on wetlands habitat and habitat for rare threatened and endangered species. (**0015-3** [Espinosa, Carlos])

Comment: Although the NRC does not directly regulate transmission lines, Miami-Dade County understands that the Army Corps of Engineers (ACOE) will be a cooperating agency for this EIS. Since the Army Corps will be using the EIS as the basis for their Section 404 permit decision as it relates to the wetland impacts that would be necessary to construct the proposed plant and associated facilities, including the transmission lines, we strongly recommend the NRC include a comprehensive impacts analysis of all features that will or could potentially impact environmental resources, including wildlife and jurisdictional wetlands to be affected by the proposed transmission corridors. (**0015-4** [Espinosa, Carlos])

Comment: Construction of roads and tower pads would likely result in soil disturbance and the colonization of exotic vegetation like Brazilian pepper if unchecked. The potential land exchange property is frequently used for exotic vegetation management and monitoring of wetlands in the project area. NPS staff would be required to monitor the impacts of FPL's exotic vegetation management practices on native vegetation in the vegetation management easement granted to FPL and adjacent natural vegetative communities within the park. (**0025-3-43** [Kimball, Dan] [Lewis, Mark])

Response: *The potential impacts of building and operating proposed Turkey Point Units 6 and 7 on Everglades National Park, Biscayne National Park, and other parks and preserves, especially on wetlands within those areas, will be evaluated in Chapters 4 and 5 of the EIS, respectively. The cumulative impacts on wetlands and other ecological resources in these areas will be evaluated in Chapter 7.*

Comment: [A]ny environmental mitigation should include purchasing large tracts of land south of the plant between Florida City and Key Largo and adding this acreage to Everglades National Park or Crocodile Lake National Preserve. Several endangered panthers have been hit by cars in this area, crocodiles and manatees use Turkey Point's warm water as mating and winter

weather locations. The area south of the Nuclear plant is not a good location for homes or businesses due to proximity to the plant both for safety and security as well as environmentally sensitive lands. This land should be protected as part of the environmental mitigation and permitting. (**0008-2** [Garcia, Preston])

Response: *The potential mitigation for wetland impacts and impacts on Federally and State-listed threatened or endangered species will be discussed in Chapters 4, 5, and 7 of the EIS. Evaluation of the impacts of building and operating proposed Turkey Point Units 6 and 7 on regional land use will also be included in those chapters.*

Comment: [T]he planned use of SW 359 Street as a service road through wetlands for Turkey Point 6 & 7 will compromise a $135 Million CERP/Comprehensive Everglades Restoration Project. (**0012-7** [Payne, Nkenga])

Comment: Road construction will also cause direct wetland loss and fragmentation. (**0025-2-18** [Kimball, Dan] [Lewis, Mark])

Response: *The potential impacts of proposed Turkey Point Units 6 and 7 transmission line and access road construction and operation on regional wetlands, including those involved in the CERP, as well as potential mitigation actions, will be evaluated in Chapters 4, 5, and 7 of the EIS.*

Comment: The Draft EIS should discuss how the construction of Units 6 and 7 would impact sensitive coastal. wetlands and any mangrove protected areas along Biscayne Bay and adjacent to Biscayne National Park. The Draft EIS should also address any issues related to the Florida Everglades Mitigation Bank. (**0014-10** [Mueller, Heinz])

Response: *The impacts of building proposed Turkey Point Units 6 and 7 on coastal wetlands and mangrove-protected areas along Biscayne Bay will be evaluated in Chapter 4 of the EIS. The possible role of the Florida Everglades Mitigation Bank, and other wetland mitigation banks in the region, in the mitigation of wetland losses will also be evaluated in Chapter 4.*

Comment: The Draft EIS needs to provide information on measures that have been taken to avoid and minimize wetland impacts. According to the Clean Water Act (CWA) Section 404(b)(1) Guidelines, an applicant must demonstrate avoidance and minimization of wetland impacts before compensatory mitigation can be considered. Specifically, no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem. Practicable alternatives include activities which do not involve the discharge of dredged or fill material into waters of the United States. (**0014-17** [Mueller, Heinz])

Response: *Wetland mitigation measures, as applicable to CWA Section 404 compliance, including avoidance and minimization efforts, will be discussed in Chapter 4 of the EIS.*

Comment: List of potentially occurring State-listed fish and wildlife species

Common name	Scientific name	State-listing status
Atlantic sturgeon	*Acipenser oxyrinchus*	Species of special concern

American alligator	*Alligator mississippiensis*	Species of special concern
American crocodile	*Crocodylus acutus*	Endangered
Eastern indigo snake	*Drymarchon corais couperi*	Threatened
Least tern	*Sterna antillarum*	Threatened
Limpkin	*Aramus guarauna*	Species of special concern
Snail kite	*Rostrhamus sociabilis plumbeus*	Endangered
Everglades mink	*Mustela vison evergladensis*	Threatened
Florida manatee	*Trichechnus manatus latirostris*	Endangered

(**0018-3** [Poole, Mary Ann])

Comment: The site has nesting habitat for the least tern. Least terns are listed as threatened by the FWC and may potentially be nesting on the cleared gravel upland portions of the site. Please provide least tern nesting surveys and address the loss of potential nesting habitat. (**0018-5** [Poole, Mary Ann])

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse impacts of airborne pathogens from the Turkey Point FPL power station on state or federal endangered or threatened species, as a result of using reclaimed wastewater for cooling purposes, please provide them. (**0022-1-16** [Reynolds, Laura])

Comment: Please state the amount of disruption to listed species that the construction of units 6&7 will make including the plant site, all support facilities, all structures, all borrow pits (including rockmines) all fencing, all roads, all berms, all pipelines, all transmission lines, all basins, all parking lots, and all vehicle usage. (**0022-2-21** [Reynolds, Laura])

Response: *The potential impacts of building and operating proposed Turkey Point Units 6 and 7 and associated facilities on Federally and State-listed threatened or endangered species will be addressed in Chapters 4 and 5 of the EIS, based on the affected environment described in Chapter 2. The analysis will consider possible impacts resulting from airborne pathogens. The EIS will include citations for documents used in its preparation.*

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse impacts on farm crops, wetlands, wildlife, and marine areas from airborne pathogens, as a result of using reclaimed wastewater for cooling purposes, please provide them. (**0022-1-17** [Reynolds, Laura])

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse impacts from airborne toxic matter on farm crops, wetlands, and marine areas, as a result of using reclaimed water for cooling purposes, please provide them. (**0022-1-19** [Reynolds, Laura])

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse impacts from airborne EPOCs on farm crops, wetlands, wildlife, and marine areas, as a

result of using reclaimed water for cooling purposes, please provide them. (**0022-2-3** [Reynolds, Laura])

Response: *The potential impacts of building proposed Turkey Point Units 6 and 7 on ecological resources, including the impacts of airborne releases, will be addressed in Chapters 4, 5, and 7 of the EIS, based on the affected environment described in Chapter 2. The analysis will consider possible impacts to species and habitats resulting from airborne pathogens and contaminants. The EIS will include citations for documents used in its preparation.*

Comment: The applicant should also provide the management plan for listed species required under Condition 2 of Z-56-07, which should include but not be limited to identifying the plans established to protect endangered or threatened species from impacts resulting from the proposed work. (**0023-1-19** [LaFerrier, Marc])

Comment: The application states, "Due to the limited amount of upland habitat, mammalian wildlife species are relatively uncommon in the vicinity of the Site" and fails to acknowledge that there is a possibility for Florida panther in the vicinity. It should be noted that there have been three documented vehicle strikes of Florida Panthers in this region, including two road kills in the recent past. In addition, there have been recent agency reports of additional animals in the area, including a panther/cub pair. The application does not provide sufficient information to evaluate potential impacts to ecological resources including but not limited to rare threatened and endangered species resulting from the installation and use of the proposed access roads. [Same statement for T-Lines] (**0023-2-13** [LaFerrier, Marc])

Comment: The application notes that the Eastern indigo snake has been observed both within and adjacent to the boundaries of the site. Please provide a Comprehensive Environmental Impact Statement that includes, but is not limited to, the potential effects of the construction and operation of the plant and its associated non-linear and linear features on the Eastern indigo snake. [Same statement for T-Lines] (**0023-2-16** [LaFerrier, Marc])

Comment: Please provide documentation that demonstrates that critical habitat for threatened and endangered species will not be degraded and/or destroyed, as required pursuant to the Miami-Dade County CDMP. (**0023-4-9** [LaFerrier, Marc])

Response: *These comments refer to the SCA submitted to the State of Florida by FPL, but they indicate an interest in the potential impacts of the proposed units on Federally and State-listed threatened or endangered species. The potential impacts of building and operating proposed Turkey Point Units 6 and 7 on Federally and State-listed threatened or endangered species will be discussed in Chapters 4, 5, and 7 of the EIS, based on the affected environment described in Chapter 2.*

Comment: High quality coastal wetlands exist on the shoreline along the proposed area of work. (**0023-1-46** [LaFerrier, Marc])

Comment: Pursuant to Condition 1 of Z-56-07, the applicant shall submit a wetlands mitigation plan for the Units 6 and 7 Site. .... Pursuant to Condition 1 of Z-56-07, the plan shall identify the specific mitigation that is for the Units 6 and 7 Site. (**0023-1-62** [LaFerrier, Marc])

Comment: It is unclear from the application whether the proposed rock mines will impact existing wetland restoration areas associated with previous unauthorized impact to wetlands on FPL property in this location. (**0023-3-18** [LaFerrier, Marc])

Response: *These comments refer to the SCA submitted to the State of Florida by FPL, but they indicate an interest in the potential impacts of proposed Turkey Point Units 6 and 7 on wetlands. The potential impacts of building and operating the proposed units on wetlands will be discussed in Chapters 4, 5, and 7 of the EIS, based on the affected environment described in Chapter 2.*

Comment: The CEIS should include, at a minimum, a comprehensive species survey that utilizes professionally-accepted sampling standards to survey plants and animals at multiple locations in the mudflat at least quarterly for a minimum of one year. Sampling should include, but not be limited to algae, vascular plants, insects, birds, reptiles, amphibians, fish, aquatic invertebrates, and mammals. (**0023-1-22** [LaFerrier, Marc])

Comment: The application does not address biological, hydrological, and ecological impacts resulting from road construction and operation. Impacts that shall be addressed include but are not limited to disruption of ecological corridors, altered hydrology in surrounding wetlands (e.g. via barriers to sheetflow), increased invasion rate of non-native species, increased road-kill, impacts to listed species and their habitat, including but not limited to Florida panthers and Eastern indigo snakes, and increased access that may facilitate illegal dumping, ATV riding, poaching, and other activities that may directly or indirectly impact surrounding wetlands. (**0023-1-50** [LaFerrier, Marc])

Comment: [P]lease provide locations, details and descriptions of all wildlife protection features, including but not limited to wildlife fencing and panther underpasses. (**0023-2-17** [LaFerrier, Marc])

Comment: Application is incomplete and includes incorrect characterization of the vegetation adjacent to the site. Corrected and missing information is needed to determine the potential impacts of the application, especially on state and federally protected species. Vegetation adjacent to the site and located along the transmission line corridors includes freshwater communities, and the coastal vegetation communities are more diverse than characterized. Please provide a complete vegetation survey for all transmission line corridors, including but not limited to complete species lists for each community type and identification and location of state and federally protected species. Please also provide a complete analysis of utilization of these vegetation communities by fauna, including but not limited to insects, birds, fish, aquatic invertebrates, reptiles, amphibians, and mammals, and including but not limited to season of use, use by state or federally protected species, and nature of use. (**0023-3-22** [LaFerrier, Marc])

Comment: The application provides insufficient information on the potential effects of the transmission line corridors on state and federally protected species, designated EEL sites, Natural Forest Communities, and tree resources protected. (**0023-3-23** [LaFerrier, Marc])

Comment: The application states that new rights-of-way will need to be obtained for the east transmission line corridor. Please provide details on where new rights of way will be obtained, and whether there are state or federally protected plant or animal species, designated EEL sites, Natural Forest Communities, or tree resources that could be impacted by the work within these proposed new rights-of-way. (**0023-3-24** [LaFerrier, Marc])

Comment: Any improvements to the transmission corridors, including but not limited to the installation of power poles and lines must avoid/minimize impacts to Natural Forest Communities. A survey of all Natural Forest Communities, within and adjacent to the transmission corridors, is required and all proposed impacts to Natural Forest Communities must be identified. (**0023-3-25** [LaFerrier, Marc])

Comment: Please submit plans for the protection of Endangered and Threatened Species both during construction and for the temporary and long term use of the proposed roads and facilities. (**0023-3-51** [LaFerrier, Marc])

Comment: [T]he referenced location will be permanent or temporary, final slopes and elevations for the piles, what measures will be taken to address stormwater runoff from the spoil piles, characterization of the material including but not limited to contamination levels, potential impacts to threatened and endangered species including but not limited to potential impacts to critical habitat, and potential impacts to surrounding coastal wetlands.
(**0023-4-14** [LaFerrier, Marc])

Response: *These comments refer to the SCA submitted to the State of Florida by FPL, but they indicate an interest in the potential impacts of proposed Turkey Point Units 6 and 7 on Federally and State-listed threatened or endangered species, wetlands, and other terrestrial resources. The potential impacts of building and operating the proposed units on terrestrial ecological resources will be discussed in Chapters 4, 5, and 7 of the EIS, based on the affected environment described in Chapter 2.*

Comment: Construction and use of new access or improved access roads will provide a conduit for introduction of invasive exotic species on adjacent lands, including but not limited to, EEL conservation lands. (**0023-2-5** [LaFerrier, Marc])

Comment: Chapter 24 and the Landscape Code of Miami-Dade County require that all invasive/exotic plant species be removed prior to site development, even outside of mitigation areas. Please address exotic plant management for all parcels where impacts will occur.
(**0023-3-53** [LaFerrier, Marc])

Response: *These comments refer to the SCA submitted to the State of Florida by FPL, but they indicate an interest in the potential impacts of the proposed units and transmission lines on habitat quality on adjacent lands. The potential impacts of building and operating proposed Turkey Point Units 6 and 7 and transmission corridors on terrestrial ecological resources will be addressed in Chapters 4, 5, and 7 of the EIS, based on the affected environment described in Chapter 2. The analysis will consider the potential impacts from invasive and exotic plant species.*

Comment: Please provide in the Draft EIS a proposed mitigation plan to offset unavoidable wetland impacts. The mitigation plan should be in compliance with Federal Compensatory Mitigation Rule, dated April 10, 2008. (**0014-18** [Mueller, Heinz])

Comment: [T]he applicant shall submit a wetlands mitigation plan for the areas impacted by the construction of the access roads. (**0023-2-10** [LaFerrier, Marc])

Comment: A substantial proportion of the access road network passes through and, if approved, will impact the South Dade Wetlands and South Dade Wetlands Addition, both of which are projects designated for acquisition by Miami-Dade County's Environmentally Endangered Lands (EEL) Program. The applicant must provide information on the ultimate disposition of all proposed access roads that occur within the boundaries of these EEL projects, including but not limited to identifying roads that will be downgraded or removed, and which rights of way or road corridors could potentially be transferred or dedicated to the EEL program at the completion of the construction phase of the project after road remediation has been completed. (**0023-2-11** [LaFerrier, Marc])

Comment: Please submit information demonstrating that impacts to wetlands within and adjacent to the proposed roadway expansion area have been avoided and minimized to the maximum extent possible. (**0023-2-12** [LaFerrier, Marc])

Comment: Environmentally Endangered Lands (EEL) owned and/or managed conservation lands exist along proposed access roads. The application has not detailed the potential impacts to EEL land from any work related to the roads. The application should provide information on which roads are proposed as temporary, the ultimate disposition of the access road network, and an analysis of options for remediation of temporary roads after the project has been completed, including but not limited to road removal, restoration of impacted natural areas, and dedication of the restored land to the EEL Program. (**0023-2-8** [LaFerrier, Marc])

Comment: The EEL Program owns additional land in other areas in which project features occur, so changes to roads and rights-of-way may impact publicly-held and managed lands beyond the proposed project areas. (**0023-2-9** [LaFerrier, Marc])

Comment: Please provide additional documentation to describe the time associated with the proposed functional gain, especially in areas where the ecology, including change in the floral and faunal composition, is projected to recover based on relatively minor changes in hydroperiod and/or hydropattern. (**0023-4-5** [LaFerrier, Marc])

Comment: The SFWMD recommends that the following issues be addressed in the Environmental Impact Statement: Wetland Mitigation Proposals - The potential benefits and/or adverse impacts related to FPL's wetland mitigation proposals. Limited information has been provided to date by FPL regarding potential wetland mitigation options. (**0032-27** [Golden, James])

Response: *These comments refer to the SCA submitted to the State of Florida by FPL, but they indicate an interest in the potential impacts of the proposed units and ancillary linear corridors on wetlands and other environmentally sensitive lands. The potential impacts of building and operating proposed Turkey Point Units 6 and 7 and ancillary corridors on wetlands*

and other sensitive areas and potential mitigation of those impacts will be discussed in Chapters 4, 5, and 7 of the EIS, based on the affected environment described in Chapter 2. FPL will be required to submit a wetland mitigation plan as part of the CWA Section 404 permit application submitted to the USACE.

Comment: The NPS is particularly concerned about the potential harm to water-dependent birds, including endangered wood storks, snail kites and a host of migratory bird species that nest, forage and feed within or near the West Preferred and West Secondary corridors. Potential effects include degradation or fragmentation of valuable wetlands habitat, disturbance of birds during construction, and the permanent risk of avian injuries and death from electrocution or collisions with the transmission lines, towers, and guy wires. This area is the focus of a number of important ecosystem restoration projects that specifically seek to increase the wetland function in these areas and provide improved habitat suitability for a variety of wetland-dependent species, particularly water-dependent birds. The construction of a large complex of transmission lines in this area creates a perpetual risk to birds that is inconsistent with the goals of Everglades restoration projects. The EIS should assess the impacts of the proposed transmission infrastructure on all avian species known to use the area with particular emphasis on state- and Federally-listed threatened and endangered and migratory bird species. A risk assessment should be performed that outlines specific methods that will be employed to avoid and minimize impacts to avian species. (**0025-2-11** [Kimball, Dan] [Lewis, Mark])

Comment: The Eastern Preferred Transmission Line Corridor should be evaluated for impacts to migratory, roosting, and nesting birds. State-listed wading birds (e.g., white ibis) have nightly roosts in islands of Biscayne National Park, and they fly to the mainland daily crossing over proposed Eastern transmission lines. In addition, bald eagles, ospreys, and State-listed wading birds also have active nests within Biscayne National Park boundaries. A risk assessment should be performed that outlines specific methods that will be employed to minimize impacts to roosting and nesting birds. (**0025-2-6** [Kimball, Dan] [Lewis, Mark])

Comment: The proposed corridors are located adjacent to multiple wading bird colonies containing federal and state-listed species including the wood stork (*Mycteria americana*), snowy egret (*Egretta thula*), little blue heron (*Egretta caerulea*), tricolored heron (*Egretta tricolor*), and white ibis (*Eudocimus albus*). More than 30 other avian species of concern (federal and/or state listed) are known to, or have the potential to, occur in the corridors and habitats. 2. The endangered Everglade snail kite (*Rostrhamus sociabilis plumbeus*) forages and nests directly within the footprint of the proposed West Preferred Corridor. 3. Listed avian species are at risk of injury/mortality from collisions and electrocutions with the proposed power lines. Both corridors cross known flight pathways of the endangered wood stork and the Everglade snail kite. The West Preferred Corridor crosses flight pathways of other protected migratory species, such as waterfowl, that use the Atlantic Flyway during seasonal migrations. 4. Based on their sheer abundance, including juveniles within the area, proximity to the power line, frequent flights across the West Preferred Corridor, and morphology, listed wading birds meet many of the risk factors known to affect avian mortality rates caused by transmission power lines. 5. The endangered wood stork may be at highest risk of injury/mortality from the proposed powerlines of all avian species due to its limited population size, body form, nocturnal foraging behavior, flight patterns, and abundance of juveniles in the area. 6. Implementation of the proposed transmission lines would result in filling of over 100 acres of habitat within

Everglades National Park that includes wood stork and Everglade snail kite foraging habitat as well as Everglade snail kite nesting habitat. 7. Florida panthers have been documented in and around both corridors within ENP. Suitable panther habitat within the park would be reduced by over 100 acres as wetlands are filled for tower pads and access roads. Potential effects to panthers would include temporary disturbance during construction. (**0025-3-32** [Kimball, Dan] [Lewis, Mark])

Comment: More than 200 avian species are at risk of increased injury/mortality resulting from potential electrocutions and collisions with the proposed power lines. Species known to produce streamers, such as raptors, vultures, and herons, are at risk of injury/mortality from electrocution with the proposed power lines. 2. Besides the previously mentioned listed and special status species, other non-listed avian species that nest within colonies adjacent to the proposed corridors include great egrets (*Ardea alba*), great blue herons (*Ardea herodias*), cattle egrets (*Bub ulcus ibis*), anhingas (*Anhinga anhinga*), black-crowned night herons (*Nycticorax nycticorax*), and yellow-crowned night herons (*Nyctanassa violacea*). 3. More than 40 bird species that are not threatened, endangered, or special status species are anticipated to nest within the proposed corridors or adjacent habitats. 4. Implementation of the proposed transmission lines would result in filling of over 100 acres of habitat used by more than 200 avian species. (**0025-3-33** [Kimball, Dan] [Lewis, Mark])

Comment: The SFWMD recommends that the following issues be addressed in the Environmental Impact Statement: Electrical Transmission Lines - Another area of concern is specific to tree islands, which are commonly used as bird rookeries. Islands in or adjacent to this corridor have been Wood Stork rookeries in recent years. Given that Wood Storks are an endangered species and that restoration of the Wood Stork population, along with other Everglades wading bird populations, is a primary CERP target, the construction and presence of electrical transmission lines that could impact these tree islands and their fauna should be avoided. Please note that there may also be potential adverse impacts to the Wood Stork population and other Everglades wading bird populations from the West Preferred Corridor. (**0032-25** [Golden, James])

Response: *The potential impacts of building and operating the proposed new transmission lines on migratory, roosting, and nesting birds, including those that are Federally or State-listed as threatened or endangered will be addressed in Chapters 4, 5, and 7 of the EIS, based on the affected environment described in Chapter 2.*

Comment: Eliminate or reduce the direct and secondary wetland impacts and impacts to wetland-dependent listed species. The amendment does not demonstrate elimination or reduction of direct and secondary wetland impacts and impacts to wetland-dependent listed species. Please provide alternative analyses to document elimination or reduction of direct and secondary wetland impacts for all potential roadway corridors. Potential secondary impacts include habitat fragmentation, other induced development, and habitat alteration related to opportunistic undesirable (or exotic) vegetation. (**0032-35** [Golden, James])

Comment: Revise the habitat assessment to better reflect the actual habitat values. Provide mitigation adequate to offset the proposed wetland impacts. (**0032-36** [Golden, James])

Response: *These comments refer to the SCA submitted to the State of Florida by FPL, but they indicate an interest in the potential impacts of the proposed units and ancillary facilities on wetlands and habitat degradation. The potential impacts of building and operating proposed Turkey Point Units 6 and 7 and ancillary facilities and corridors on wetlands and habitat degradation will be discussed in Chapters 4, 5, and 7 of the EIS, based on the affected environment described in Chapter 2.*

Comment: These sections characterize the plant site as sparsely-vegetated hypersaline mud flats which provide limited habitat for aquatic biota due to fluctuations in water levels and salinity associated with the cooling canal system, DERM staff observations of the plant site during site visits, however, indicated that the site was heavily vegetated during the early wet season 2009, A Comprehensive Environmental Impact statement is needed pursuant to Chapter 24 of the Miami-Dade Code that addresses this and other issues. CEIS should include, at a minimum, a complete seasonally-based biological surveys for the proposed facility site that includes, but is not limited to birds, insects, fish, reptiles and amphibians, mammals, and aquatic invertebrates. (**0023-1-17** [LaFerrier, Marc])

Comment: The SFWMD recommends that the following issues be addressed in the Environmental Impact Statement: Radial Wells and Construction Dewatering Withdrawals at Power Plant Site - The potential for adverse impacts to wetlands and listed species. (**0032-12** [Golden, James])

Comment: The SFWMD recommends that the following issues be addressed in the Environmental Impact Statement: Additional Construction Impacts at Power Plant Site - The potential for adverse impacts to wetlands and listed species. (**0032-14** [Golden, James])

Comment: The SFWMD recommends that the following issues be addressed in the Environmental Impact Statement: Temporary Roadway Improvements for Construction of Units 6 & 7 - The potential for adverse impacts to environmentally sensitive lands within the Model Land Basin. (**0032-16** [Golden, James])

Comment: The SFWMD recommends that the following issues be addressed in the Environmental Impact Statement: Reclaimed Water Pipeline - The potential for adverse impacts to wetlands and listed species. (**0032-17** [Golden, James])

Comment: The SFWMD recommends that the following issues be addressed in the Environmental Impact Statement: Electrical Transmission Lines - The potential for adverse impacts to wetlands and listed species. (**0032-19** [Golden, James])

Response: *The potential impacts of building and operating proposed Turkey Point Units 6 and 7 and ancillary facilities and corridors on wetlands, Federally and State-listed species, and other terrestrial important resources will be addressed in Chapters 4, 5, and 7 of the EIS, based on the affected environment described in Chapter 2.*

Comment: The application does not include the listed species management plan, as required under Condition 2 of Z-56-07. Please provide the required plan. (**0023-1-63** [LaFerrier, Marc])

Comment: A plan is needed for in-kind, in-situ mitigation for impacts to existing wetlands related to the Radial Collection Well Area and Radial Collector Well Delivery Pipeline. Please include planting scheme, success criteria, monitoring and maintenance schedules. High quality coastal wetlands exist on the shoreline along the proposed area of work. (**0023-1-71** [LaFerrier, Marc])

Comment: The application does not provide a complete and detailed exotic vegetation management plan as required by Condition 12 of Z-56-07. (**0023-2-30** [LaFerrier, Marc])

Comment: The application fails to provide sufficient information to determine whether it is in compliance with the tree protection provisions of Section 24-49 of the Miami-Dade Code. (**0023-2-31** [LaFerrier, Marc])

Comment: The application does not include the management plan for all federal and state listed threatened and endangered species documented within the proposed access area, as required under Condition 11 of Z-56-07. (**0023-2-32** [LaFerrier, Marc])

Comment: Please submit a proposed schedule for long term monitoring, maintenance and financial assurances for all proposed mitigation areas. Please submit more detailed information about the location and types of anticipated impacts associated with the secondary Impacts. Please submit a detailed assessment of the time lag and risk associated with the restoration of the temporary impacts. (**0023-3-69** [LaFerrier, Marc])

Comment: It was stated that the Basis of Review and ratios were used to determine the mitigation credits necessary in the HID. According to the Basis of Review, the ratios should be 1.5/1 to 4/1. How was the proposed 1/1 determined and how is it consistent with the Basis of Review and the agency decisions used for other wetland impacts in the area? (**0023-4-15** [LaFerrier, Marc])

Comment: The HID Mitigation Bank has a finite amount of mitigation that they can perform annually and receives funding from other impact associated with private development. Please provide evidence that the large amount of mitigation, as proposed, can be accomplished in the projected time frame. (**0023-4-16** [LaFerrier, Marc])

Comment: The application does not provide the planting plan required under Condition 13 of Z-56-07 for material that will not be planted at the proposed plant site. (**0023-4-18** [LaFerrier, Marc])

Comment: The application does not include the listed species management plan, as required under Condition 2 of Z-56-07. Please provide the required plan. Pursuant to Condition 2 of Z-56-07, the plan shall include but not be limited to identification, location, and description of features such as permanent physical barriers, visual buffers, and the establishment of development setbacks necessary to prevent both direct and indirect impacts to adjacent critical habitat and disruption of sensitive behaviors such as breeding, nesting and foraging within the adjacent critical habitat. (**0023-4-20** [LaFerrier, Marc])

Response: *These comments are directed at the applicant and refer specifically to the SCA submitted to the State of Florida by FPL, but they indicate an interest in the impacts of building*

and operating proposed Turkey Point Units 6 and 7 on terrestrial resources. The potential terrestrial impacts of building the units will be presented in Chapter 4 of the EIS and the potential terrestrial impacts of operating the units will be presented in Chapter 5. Cumulative terrestrial impacts will be presented in Chapter 7.

Comment: What impact will salt deposition from the cooling towers have on freshwater wetlands in the area? What are the cumulative impacts of salt deposition from Units 3 and 4 in addition to those from the proposed Units 6 and 7? (**0018-16** [Poole, Mary Ann])

Comment: Other specific issues NMFS recommends for evaluation in the EIS or EFH assessment: 3. *Cooling towers*. Please evaluate potential impacts to wetlands from salt deposition from the cooling towers. (**0033-11** [Croom, Miles])

Response: *The potential impacts of operating proposed Turkey Point Units 6 and 7 on terrestrial ecological resources, including the impact of salt deposition from drift, will be discussed in Chapters 5 and 7 of the EIS, based on the affected environment described in Chapter 2.*

D.1.10 Comments Concerning Ecology – Aquatic

Comment: The reason they want to stay in that spot is because they're going to use the ocean water to cool the reactors. That hot water goes somewhere. It has been shown over and over again it produces algae blooms; it affects the pH around there; it kills the fish; it changes it. We have a fragile coral reef that runs along us. We are in a fragile environmental area. It is an environmental impact. (**0001-11-10** [Amor, Valerie])

Response: *The potential impacts from cooling water, including the use of reclaimed water from Miami-Dade County, use of water obtained from RCWs located at Turkey Point, and discharge of heated water to the Boulder Zone, will be discussed in Chapter 5 of the EIS.*

Comment: I haven't even begun to talk about fish and wildlife, road impacts, exotic species, and all of that. But there's a lot of information out there from the State Siting Act process that you should look at. (**0002-6-7** [Grosso, Richard])

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse impacts of the biological forms that will be affected by deep well injected wastes, please provide them. (**0022-2-6** [Reynolds, Laura])

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to the geographical extent of the biological forms that will be affected by the deep well injected wastes, please provide them. (**0022-2-7** [Reynolds, Laura])

Response: *A variety of sources of information will be used during the development of the EIS, including information associated with the Florida SCA. The EIS will include citations for documents used in its preparation.*

Comment: List of potentially occurring State-listed fish and wildlife species

Common name	Scientific name	State-listing status
Atlantic sturgeon	*Acipenser oxyrinchus*	Species of special concern
American alligator	*Alligator mississippiensis*	Species of special concern
American crocodile	*Crocodylus acutus*	Endangered
Eastern indigo snake	*Drymarchon corais couperi*	Threatened
Least tern	*Sterna antillarum*	Threatened
Limpkin	*Aramus guarauna*	Species of special concern
Snail kite	*Rostrhamus sociabilis plumbeus*	Endangered
Everglades mink	*Mustela vison evergladensis*	Threatened
Florida manatee	*Trichechnus manatus latirostris*	Endangered

(**0018-2** [Poole, Mary Ann])

Response: *The potential impacts on Federally and State-listed threatened and endangered species, including those listed in the comment, from building and operating proposed Turkey Point Units 6 and 7 will be discussed in Chapters 4 and 5 of the EIS.*

Comment: Please state the amount of disruption to the biota of Biscayne National Park and adjacent bodies of Outstanding Florida Waters that the construction of units 6&7 will make including the plant site, all support facilities, all structures, all borrow pits (including rockmines,) all fencing, all roads, all berms, all pipelines, all transmission lines, all basins, all parking lots, and all vehicle usage. (**0022-3-1** [Reynolds, Laura])

Response: *The EIS will discuss the aquatic resources in the vicinity of Turkey Point in Chapter 2 of the EIS and will consider potential impacts from building proposed Turkey Point Units 6 and 7 in Chapter 4. Chapter 7 will evaluate cumulative aquatic impacts.*

Comment: Please show the barge routes and state the number of barge trips for each route for units 6&7 that traverse the waters of Biscayne National Park and other protected waters. Please state the sizes and drafts of the barges. Please state the average speed and maximum speed of the barge trips. Please state the increased damage to the benthic communities due to physical contact, turbidity, silt deposition, and wake disruptions. Please state the amounts of cumulative damage to the benthic communities resulting from historic barge trips and the increased barge trips due to units 6&7. Please state the plan for preventing barge collisions with manatees, turtles, and other protected species. Please state the plan for minimizing the number of barge trips for units 6&7. Please state the mitigation for damage to the benthic communities of Biscayne National Park and other protected waters. (**0022-3-18** [Reynolds, Laura])

Comment: The application does not provide sufficient information to demonstrate how manatees will be protected during construction of the barge slip improvements. (**0023-1-64** [LaFerrier, Marc])

Comment: Potential impacts to other key resources in Biscayne National Park - 4. FPL should clarify how they would transport construction supplies and equipment to the worksite, including via marine pathways, and evaluate any additional impacts on the marine environment. (**0025-3-30** [Kimball, Dan] [Lewis, Mark])

Response: *The potential impacts of increased barge traffic associated with building proposed Turkey Point Units 6 and 7 and the potential impacts of altering the barge slip will be discussed in Chapter 4 of the EIS.*

Comment: Surveys: Detailed surveys of all fish and wildlife resources in the vicinity of each proposed component of this project, to include laydown areas for construction equipment; areas that will be temporarily disturbed by excavations; and areas that may potentially be affected by changes in salinity, turbidity and sedimentation due to the operations of project. Please include, but do not limit to: benthic species and habitats (seagrasses, hardbottom, reefs, and associated reef resources), plankton, mangroves, and protected species (both Federally and State-listed). The design of all survey methodologies should be coordinated with the FWC. Provide a map of delineated habitat types (including mangroves and submerged habitats such as seagrasses and hardbottoms) with an overlay of the project component footprints. (**0018-4** [Poole, Mary Ann])

Comment: Surveys: For the 60-foot x 100-foot x 9-foot deep barge unloading area expansion, please provide fish and wildlife resource surveys and sea grass surveys. With regard to the potential for manatees to occur in the barge unloading expansion area during construction, the applicant should provide information detailing how observers will be selected, whether they have any previous experience observing for manatees, how many observers will be assigned to the construction areas, and how many hours per day each observer will be assigned to work. (**0018-6** [Poole, Mary Ann])

Comment: Please state the plan for protecting benthic communities for all alterations to the plant site affecting the marine environment. Please state the plan for protecting manatees, turtles, dolphins, sawfish, and other protected species from non-explosive dredging activities. Please state the plan for protecting manatees, turtles, dolphins, sawfish, and other protected species from explosive activities. (**0022-3-21** [Reynolds, Laura])

Comment: The application proposes several wildlife underpasses to facilitate movement of crocodiles under construction roads within the plant boundary. Please provide a detailed analysis of how the specified locations were selected and how crocodiles that may occur outside the plant near linear features (such as the transmission lines, access roads and spoil disposal routes) will also be protected from disturbance. [Same statement for T-Lines] (**0023-2-15** [LaFerrier, Marc])

Comment: Seasonal patterns of behavior of threatened and endangered species occupying Biscayne National Park, such as West Indian Manatees and American crocodiles, may occur if water salinity, temperature or quality changes as a result of construction or operation of Units 6&7 and non-transmission facilities. These impacts should be evaluated. (**0025-3-29** [Kimball, Dan] [Lewis, Mark])

Response: *The EIS will discuss the aquatic resources in the vicinity of Turkey Point in Chapter 2 and will consider potential impacts to benthic communities, fish, manatees, and sea turtles in Biscayne Bay and American crocodiles from building and operating proposed Turkey Point Units 6 and 7 (and planned mitigation) in Chapters 4 and 5.*

Comment: Impacts to submerged aquatic vegetation: Please submit a description of expected short term and long term anticipated impacts resulting from the proposed scope of work. (**0023-1-18** [LaFerrier, Marc])

Response: *The nature and extent of submerged aquatic vegetation will be discussed in Chapter 2 of the EIS. Potential impacts to submerged vegetation of building and operating proposed Turkey Point Units 6 and 7 will be discussed in Chapters 4 and 5, respectively. Cumulative impacts of operating the proposed units and other past, present, and reasonably foreseeable future actions that impact the same resources will be discussed in Chapter 7.*

Comment: Please provide documentation in support of this statement, including but not limited to a copy of the cited report with current data on nesting activity, nest success, hatchling sex ratios and survivorship, and survivorship to adulthood of juveniles hatched at Turkey Point over the period of record during which crocodile monitoring has been occurring at the Turkey Point power plant. [Same statement for T-Lines] (**0023-2-14** [LaFerrier, Marc])

Response: *The past and current populations of the American crocodile will be characterized and a description of the recent monitoring program for this species will be provided in Chapter 2 of the EIS.*

Comment: The cumulative effects of the proposed Units 6&7 plants and non-transmission facilities will place considerable stress on an already vulnerable ecosystem and potentially cause harm to Biscayne Bay and adjacent coastal wetlands. Disturbances to estuarine, marine, and terrestrial habitats are likely to result from proposed Units 6&7 construction and operation. (**0025-1-11** [Kimball, Dan] [Lewis, Mark])

Response: *The potential impacts associated with building and operating proposed Turkey Point Units 6 and 7 will be discussed in Chapters 4 and 5 of the EIS, respectively. A discussion of the cumulative impacts associated with the proposed units will appear in Chapter 7.*

Comment: The operation of the RCWs would result in ... water volume and quality alterations posing a threat to ecosystem function of the nearshore habitats of Biscayne Bay. (**0025-1-14** [Kimball, Dan] [Lewis, Mark])

Comment: The operation of the RCWs could potentially change sediment oxidation-reduction potential in seagrass beds and benthic communities, which should be considered an ecological impact. (**0025-3-17** [Kimball, Dan] [Lewis, Mark])

Comment: The net reduction in positive groundwater flux to the benthic ecosystem will occur due to the operation of the RCW. Groundwater is an important source of freshwater for benthic communities and any reduction should evaluated for its associated impact. (**0025-3-18** [Kimball, Dan] [Lewis, Mark])

Comment: Although the radial collector wells will be physically placed in the underlying aquifer and the laterals are not expected to extend into park boundaries, the primary source intake water is Biscayne Bay. Based on the design feature of horizontal production wells and preliminary hydrologic modeling, the cone of influence includes Biscayne National Park waters. The application design is for up to 124 million gallons per day to be withdrawn from these

surface waters. The groundwater modeling which predicts minimal impacts to the benthic organisms of the bay appears to consider the subsurface as a singular uniform, non-karst feature, which is not accurate. The groundwater modeling does not provide the degree of detail needed to determine impacts to the benthic organisms of the bay and Biscayne National Park, when the RCW system is operated. (**0025-3-19** [Kimball, Dan] [Lewis, Mark])

Comment: The SFWMD recommends that the following issues be addressed in the Environmental Impact Statement: Radial Wells and Construction Dewatering Withdrawals at Power Plant Site - The potential for the proposed withdrawals to adversely impact the ecology of Biscayne Bay. (**0032-9** [Golden, James])

Response: *The potential impacts of RCW operations will be discussed in Chapter 5 of the EIS.*

Comment: *Essential Fish Habitat within the Project Area* - Mangrove: The South Atlantic Fishery Management Council (SAFMC) designates mangroves as EFH for juvenile gray snapper (Lutjanus griseus), dog snapper (L. jocu), bluestriped grunt (Haemulon sciurus), spiny lobster (Panulirus argus), and pink shrimp (Farfantepenaeus duorarum). Mangrove habitats are ecologically important coastal ecosystems (Lugo and Snedaker 1974). At a recent meeting, FPL suggested that the mangrove habitat that would be impacted by the water treatment facility (approximately 50 acres) is composed of dwarf red mangroves (Rhizophora mangle) with hypersaline conditions and lack of direct connection to other wetlands or water bodies. These types of mangrove wetlands still provide ecological services including as a buffer against storm surges, they reduce shoreline erosion and turbidity, and absorb and transform nutrients. While this mangrove system may not be inhabited to a large degree by various life stages of federally managed fisheries, they may contribute dissolved and particulate organic detritus to estuarine food webs. They help shape local geomorphic processes and are important in the heterogeneity of landforms which provide shelter, foraging grounds and nursery areas for terrestrial organisms (e.g., through bird use as a rookery and feeding on fish). The root system binds sediments thereby contributing to sedimentation and sediment stabilization. (**0033-1** [Croom, Miles])

Comment: Seagrass and Unconsolidated Bottom: SAFMC also designates seagrass as EFH. Species associated with seagrass include pink shrimp, spiny lobster, and estuarine life stages of various species within the snapper/grouper complex including adult white grunt (Haemulon plumieri); juvenile and adult gray snapper (Lutjanus griseus); juvenile mutton snapper (Lutjanus analis). Any bottom-disturbing activities within areas that are seagrass habitat must include best management practices to avoid impacting this habitat. SAFMC also designates soft bottom habitat as EFH because it plays an important role in the ecological function of coastal ecosystems by controlling fluxes of nutrients between the sediment and the water column. Shallow water, unconsolidated bottom also provides EFH by serving as nursery grounds for early life stages of benthic-oriented, estuarine-dependent species; refuges and feeding grounds for forage species and juvenile fishes (SAFMC 2009) and feeding grounds for specialized predators, including adult white grunts (Potts and Manooch 2001). (**0033-2** [Croom, Miles])

Comment: *Habitat Area of Particular Concern within the Project Area* - SAFMC also identifies mangroves and seagrass as a Habitat Area of Particular Concern (HAPC) for several species within the snapper/grouper complex. HAPCs are subsets of EFH that are either rare,

particularly susceptible to human-induced degradation, especially important ecologically, or located in an environmentally stressed area. Federal actions with potential adversely impacts HAPCs will be more carefully scrutinized during the consultation process and subject to more stringent conservation recommendations. In addition, Biscayne Bay is an EFH-HAPC for spiny lobster. Biscayne Bay and the Biscayne National Park are also an EFH-HAPC for coral, coral reefs, and hardbottoms (SAFMC 1998). (**0033-3** [Croom, Miles])

Comment: *Essential Fish Habitat Consultation Requirements* - The Magnuson-Stevens Act directs federal agencies to consult with NMFS when the agency's activities may have an adverse affect on EFH. We recommend that the NRC coordinate closely with the NMFS Habitat Conservation Division to ensure the EFH assessment and NEPA documents contain sufficient detail, 50 CFR 600.10 to 600.920 describes the content required of an EFH assessment. Specifically, the components of an EFH assessment can be found at 50 CFR 600.920(e)(3) and (4) and are listed below (additional comments are provided in parentheses). The EFH assessment can be incorporated into the EIS or provided to NMFS under separate cover.

<u>Components of an EFH Assessment:</u>

1. Description of the action. (This section can reference relevant portions of the EIS.)
2. Analysis of the potential adverse effects of the action on EFH and the managed species.
3. Federal agency's conclusions regarding the effects of the action on EFH.
4. Proposed mitigation. (Unavoidable direct and indirect impacts to EFH will require compensatory mitigation.)
5. Results of an on-site inspection to evaluate the habitat and the site-specific effects of the project.
6. Views of recognized experts on the habitat or species that may be affected.
7. Review of pertinent literature and related information.
8. An analysis of alternatives to the proposed action. (This section can reference relevant portions of the EIS alternatives analysis.)

(**0033-4** [Croom, Miles])

Response: *Essential fish habitat (EFH) and mangrove habitats near Turkey Point will be described in Chapter 2 of the EIS. The review team will also assess potential impacts on EFH, including mangrove resources, from building and operating proposed Turkey Point Units 6 and 7 in an EFH assessment that will be forwarded to the National Marine Fisheries Service (NMFS) for review. The EFH assessment will be included in an Appendix of the EIS.*

Comment: [Determine] the impact on wetlands and nearshore surface and groundwater water quality in Biscayne Bay, including as it relates to CERP efforts to promote estuarine conditions in nearshore areas. (**0023-1-36** [LaFerrier, Marc])

Response: *The impacts of building and operating proposed Turkey Point Units 6 and 7 on wetlands and nearshore surface-water and groundwater quality will be discussed in Chapters 4 and 5 of the EIS. Chapter 7 of the EIS will evaluate cumulative impacts, and include a discussion of how the proposed action might affect current or planned restoration activities in the vicinity of Turkey Point.*

Comment: Other specific issues NMFS recommends for evaluation in the EIS or EFH assessment: 1.c *Radial wells*. Impacts to EFH associated with radial well construction and operation within Biscayne Bay should be fully evaluated. The evaluations should include an evaluation of impacts associated with extended use of the radial well system to include an evaluation of impacts to groundwater that is closely tied to surface water in this porous karst area and thereby supports fish and wildlife resources. (**0033-7** [Croom, Miles])

Comment: Other specific issues NMFS recommends for evaluation in the EIS or EFH assessment: 1.e *Radial wells*. Impacts to EFH associated with radial well construction and operation within Biscayne Bay should be fully evaluated. The evaluations should include a survey and monitoring plan that would enable FPL to determine impacts from radial wells to localized habitats and the fish and wildlife that depend on them. (**0033-9** [Croom, Miles])

Response: *The potential impact of building and operating radial wells on aquatic resources will be discussed in Chapters 4 and 5 of the EIS, respectively. The review team will also assess potential impacts on EFH in an EFH assessment that will be forwarded to the NMFS for review. The EFH assessment will be included in an Appendix of the EIS. FPL's proposed monitoring program will be discussed in Chapters 2, 4, and 5.*

Comment: Other specific issues NMFS recommends for evaluation in the EIS or EFH assessment: 2. *Deep-well injection*. Please provide an evaluation of effects to fish and wildlife resources from proposed deep-well injection activities. The evaluation should describe the fate (location and concentration over time), of any nuclides injected into the well.
(**0033-10** [Croom, Miles])

Response: *The potential ecological impacts associated with deep-well injection of cooling tower blowdown will be discussed in Chapter 5 of the EIS.*

Comment: We would like to see a baseline survey and monitoring information for the radial collector wells, caissons, and lateral arms, with preferably a minimum of two years of data. This data should include sampling prior to, during, and at least one month after all radial collector well events. Identify and commit to modeling environmental responses such as water quality and fish and wildlife species that depend on seagrass and hard-bottom habitats. FWC staff can work with the applicant to identify species of interest. How will noise from well/pump operation affect fish and wildlife resources (particularly listed species) in the area of the lateral arms and the well caissons? Our staff is concerned that there might be a delayed impact on fish and wildlife resources if phenomena such as "frac-out" or subsidence of the bay bottom should impact on the radial collector wells and their associated lateral arms. Is this a possibility? If so, how will this possibility be avoided, and what contingencies will be in place if "frac-out" or subsidence does occur? Also, since radial collector wells have not yet been used in a saltwater environment, we suggest that FPL anticipate the potential for indirect impacts on fish and wildlife resource needs in the case where there might be a potential failure of the wells due to corrosion. (**0018-10** [Poole, Mary Ann])

Comment: How will fish and wildlife resources over the lateral arms of the radial collector wells be affected by the construction of the wells? How will the lateral arms be "advanced from the caissons"? We would like to see a survey and monitoring program that specifically enables FPL

to determine the contribution of this part of the proposal to any impacts on the surrounding ecosystem, localized habitats and the fish and wildlife that depend on them. (**0018-8** [Poole, Mary Ann])

Comment: FPL's response [to FDEP's SCA review] does not adequately address how benthic resources in the footprint of the RCWs and adjacent areas will not be significantly affected given the fact that at least 3% of the water will come from the Biscayne Aquifer, a source of freshwater inputs to the bay bottom, helping to support the benthic community. (**0020-2** [Mulkey, Cindy])

Response: *These comments refer to the Florida SCA, but express a concern that there is the potential for impact to benthic organisms in the vicinity of the RCWs. The potential impact of building and operating the RCWs on benthic resources will be discussed in Chapters 4 and 5 of the EIS, respectively.*

D.1.11 Comments Concerning Socioeconomics

Comment: Additionally, as Mayor of Florida City, I'm concerned about our economy. And the building of these two power plants in our area will be an immensely beneficial operation as far as spurring our economy. Safety first along with environmental protection; those are the first issue. Even with the economic benefit, if we can't guarantee safety and protection of the environment, we'll have to get jobs elsewhere. But once those two criteria are met, then the job creation becomes immensely important to me. People with jobs don't care about that aspects of it; but people without jobs simply do. (**0001-1-5** [Wallace, Otis])

Comment: Also, the gentleman that spoke before from the Chamber of Commerce, which I was a member of, stated that 4,000 jobs would be available for five years. And the gentleman who was just here before me said that 800 permanent jobs would be established. I would like to recall 1970 when Aerojet promised Florida City and Homestead that jobs would be created in the development of the Aerojet canal. Contractors were brought in from out of State and they got the jobs; nothing was done for the benefit of Florida City or Homestead, as you can see. I don't want to see this happen again if they decide to go ahead and approve nuclear plant 6 and 7. (**0001-10-2** [Marinelli, Francis J.])

Comment: When I look at this opportunity for growth and expansion in an area that truly needs it, I, because of not just what someone has told me or what someone has talked about, but it is something that I've lived, I see the benefits of it. I see kids being able to get jobs and come back home to a community that they're so very proud of. I see adults being able to take care of their elderly family members because of the amount of revenue and commerce that is being sparked. So with some of you I agree and others I vehemently disagree. And I say that this is about jobs, but it is about lifestyle, it's about living, and it's about opportunity. (**0001-17-1** [Diggs, Bill])

Comment: We are at a difficult time in our history in this country. Jobs are hard to come by; college kids that you've spent your life savings to send to school are having difficult time finding opportunities. I submit to you this: They'll either find it here or somewhere else. But at the end of the day this is our community. And I stand, if nothing else, but an example of what can

happen when community and business works together, because it's not just about jobs. It's about lifestyle; it's about faith; it's about hope. (**0001-17-2** [Diggs, Bill])

Comment: Data shows that the nuclear power plants contribute significantly to local economies. These are averages. The creation of a nuclear power plant will result in a creation of 1400 to 1800 jobs during the construction, with peak employment at 2400. As we can see in the back, FP&L has 3600, so the numbers are better. Operating a nuclear power plant generates from 400 to 700 permanent jobs and these jobs pay 36 percent more than average salaries in the local area. Again, FP&L has 800 permanent jobs. These permanent jobs create an equivalent number of additional jobs in the local area and provide goods and services necessary to support the nuclear workforce such as grocery stores, dry cleaners, et cetera. We're looking forward to that. (**0001-18-2** [Landeta, Hector])

Comment: Each year an average nuclear plant generates approximately 430 million in sales, goods, and services in the local community and nearly 40 million in total labor income. Again, they have better numbers. They see -- they have 6 billion -- 6 billion in economic benefits to local economy over the next decade. (**0001-18-3** [Landeta, Hector])

Comment: We need jobs. My generation is coming into this hard economic times and we need jobs. You're promising 800 full-time jobs for South Florida for these two reactors. I graduated in a class of 935 students in Palm Beach County. That doesn't cover those people. That's about 135 less jobs than there are people who graduated in my class. There are 23 high schools in Palm Beach County; there are 32 high schools in Miami-Dade. Do you think 800 jobs is going to make a dent in the number of young people looking to enter the work force in South Florida? (**0001-19-7** [Ryan, Megan])

Comment: [T]here are 800 full-time employees at the site and approximately an equivalent number of contractors of the site. Now, those 1600 people, they're members of the community; they buy their gas in the gas stations; they go to the supermarkets; their children go to the schools. (**0001-3-1** [Kiley, Mike])

Comment: We have to look at jobs. We have to build our economy back, a new economy that relies on growth. And the good news is that from this project it's anticipated that as many as 4,000 or more jobs will be added through the construction phase which will last five to seven years. That would be a rich addition to the workforce in South Florida, which will benefit all of us in so many, many ways, but most importantly for those people who are out of work and looking for jobs. And we have so many people in the construction industry who have been hit hard by the downturn in the economy. (**0001-5-3** [Johnson, Barry])

Comment: When the project is completed it will include 800 jobs -- 800 more jobs in South Dade; 800 more families in South Dade contributing to the growth of our community. And these are high-skilled well-paying jobs that our community needs. Those are the jobs that will build our future. (**0001-5-4** [Johnson, Barry])

Comment: As the previous speakers have said, 4,000 jobs can be created by having Units 6 and 7 built, and 800 permanent jobs -- not just any regular jobs, but high-paying engineering jobs and the like, can be provided by having 6 and 7 built. (**0001-9-2** [Martinelli, Tom])

Comment: We are here because of the proposed plans to build two atomic plants that will afford us the opportunity, after they are built at Turkey Point, to have a flourishing economy in the area. (**0002-10-1** [Alexander, William])

Comment: The Chamber also sees with sympathy all the efforts surrounding the industry, the generating industry, and the production of electricity and energy. We also see that it will provide around 3,000 jobs, which is very, very important to us. We also are considering not just those 3,000 temporary jobs, but also the 800 permanent jobs that would be left here in this region that sorely needs it right now. (**0002-10-4** [Alexander, William])

Comment: What these jobs will do -- there's a long-term effect from these two plants. Not only are they going to provide thousands of jobs as they're being built here locally, these jobs are jobs that give a sufficient rate of pay, a living wage. And in addition to that, most of the workers that work on these projects will either receive some type of pension benefits or health and welfare. (**0002-13-3** [Simpson, Roce])

Comment: One of the things you'll also notice when you come to the site is that there's 800 full-time employees, and there's an additional 800 contractors that work at the site and call this community their home. They buy their gas in town, they go food shopping in this town, they use the local restaurants, their children go to the schools. (**0002-5-4** [Kiley, Mike])

Comment: And you have to understand the economic impact and the economic value of a restored Biscayne Bay to the industries that are populated by a lot of folks who probably aren't here tonight; fisherman, recreational users, people that make their money off of that Bay. Those are jobs too, and those have major implications for what happens here in the future. (**0002-6-3** [Grosso, Richard])

Comment: We need these new power plants. It provides jobs for honest people. You look at it. A lot of people -- to get in at a nuclear power plant you got to take a 500 question site [psych?] test, plus pass a background check. You are attracting a good crowd of people in this area, which is good economically, not to mention -- I believe there's one other nuclear power plant being built right now, which is Plant Vogtle, I believe in Georgia. And we can lead the way to supplying our power demands. (**0002-7-3** [Snelson, Richard])

Comment: You look at it as far as local impact; the people, the training programs and stuff like that, it's going to provide a lot of permanent jobs for people. You look at all the foreclosures and the people that have lost their jobs. I think it's a win-win situation. (**0002-7-4** [Snelson, Richard])

Comment: Nuclear energy is also a smart economic choice. Constructing plants has the ability to employ about 4,000 people at its highest rate of construction, and then it employs about 500 specialized jobs, like Victor's, who came to the Pipeline Program at Miami-Dade. (**0002-9-3** [Martinelli, Tom])

Comment: Another great reason to consider building two new reactors would be to imagine just how many jobs it would create. In a downed economy such as this, jobs are a hard thing to come by; but upon the unveiling of two nuclear reactors, a significant job growth is to be expected -good jobs to boot, not just a medley of entry level positions. This will in turn spike the

cash flow in the South Florida area and analogously pass on to corporate and private businesses alike. (**0003-4-4** [Accursio, James])

Comment: In addition to jobs, it will also stimulate the economy by commencing the required construction spending to the county which thusly stimulates millions of dollars in property tax. These taxes are passed on to schools, colleges, educational institutions, economic growth firms, and many other governmental organizations; giving them the financial injection they need in these hectic times. (**0003-4-5** [Accursio, James])

Comment: Ensure the full scope of the proposed project's fiscal impacts is calculated. The location of the plant; transmission lines and associated facilities; the rate increase, which is proposed to precede the actual construction phase of the project; and additional direct costs that will be incurred by Miami-Dade County and its municipalities (including but not limited to fire, police; etc) over the life of the project should be taken into account and be incorporated into economic and fiscal analyses. (**0019-1** [Hamilton, Karen])

Comment: Ensure the economic benefits of the proposed expansion project, such as employment and capital expenditures, are realized by the residents of South Florida. (**0019-2** [Hamilton, Karen])

Response: *The expected socioeconomic impact of building and operating proposed Turkey Point Units 6 and 7, including impacts on local employment and earnings, local tax revenues, in-migration, local infrastructure, and public services will be presented in Chapters 4 and 5 of the EIS. The cumulative impacts of the proposed action and other past, present, and reasonably foreseeable actions will be presented in Chapter 7.*

Comment: So what that means is, that we're not going to have massive amounts of people, like we do now, going to Jackson Hospital and other community hospitals that have no health insurance, putting the burden back on the taxpayers to be able to furnish health insurance for these people. There is an endless line of people who are retired that have no income, waiting on Section 8 housing and other types of housing that they can get into and live in the twilight of their years. This will, in a lot of cases, prevent that from happening. (**0002-13-4** [Simpson, Roce])

Response: *The expected impact of building and operating proposed Turkey Point Units 6 and 7 on the capacity use of local medical services will be evaluated in Chapters 4, 5, and 7 of the EIS.*

Comment: To be more specific to the lodging industry, which I'm part right now, this power plant would produce a stabilizing effect on the local economy. It will compliment the tourism industry. And as maybe you know this, especially people from FP&L, refueling takes place every 18 to 24 months for each reactor and brings several hundred workers from outside the local area who stay in the hotels, motel, and eat in our local restaurants. Each reactor alternates its refueling schedule, usually resulting in at least one refueling or significant equipment installation per year, typically for us during a slack part of the tourist season. (**0001-18-5** [Landeta, Hector])

Response: *The impacts on the economy and infrastructure, including recreation and housing, will be addressed in Chapters 4, 5, and 7 of the EIS.*

Comment: You say that tourism is going to be affected because people coming to work here are going to need hotels and restaurants. But I thought you said that you wanted to create jobs for people who already live here, so we should not be talking about tourism because it's already affected enough by the Gulf oil spill. (**0001-19-8** [Ryan, Megan])

Response: *The impacts of building and operating proposed Turkey Point Units 6 and 7 on both local and in-migrating labor and indirect impacts of job creation on the local economy will be addressed in Chapters 4, 5, and 7 of the EIS.*

Comment: Regarding the ability to have jobs and provide jobs for the area. Right now Miami-Dade College offers an internship program in nuclear power and practice. And interns right now from Miami-Dade College working at the FP&L Plant at Turkey Point are making $19 to $20 an hour as an intern before they even set foot on the property as a full-time licensed person. So, you know, what I think is marvelous is that they are a good partner; they run a very safe, very secure practice. And the expansion I think only solidifies our future as a great, great place to live, that being Homestead/Florida City down here. (**0001-20-5** [Daley, Dennis])

Comment: Turkey Point has had a growing demand for highly-skilled workers, and we understand that they could soon experience workforce shortages, largely due to retirements. As a result we, together, developed an Associate in Science Degree program in electrical power technology. And I would be here to tell you this today, that that program has been extremely successful. It was targeted for a very diverse population of incumbent workers at Florida Power & Light Turkey Point and our college students. Graduates from this program meet the qualifications to work in positions in nuclear and non-nuclear facilities. To date we have had 63 students to graduate from the program. And I might add that the program began in 2006. Of those 63 graduates, 36 are currently working at Turkey Point and 20 are in the process of being hired. This has truly been a success story for Florida Power & Light and Miami-Dade College. It has enriched our community. (**0001-4-2** [Jacobs, Jeanne])

Comment: Briefly I would like to discuss training with you. For this undertaking of the construction of Units 6 and 7, we're looking at jobs for over 4,000 building tradesmen. Building tradesmen within the State of Florida who are either licensed by their trade and/or have the training that is necessary to go out and build this facility correctly, on budget, and on time. I can speak on behalf of the Florida Carpenters, that we do not send a single person out to that plant for any piece of operation that is not properly credentialed and trained. And I can also tell you that the rest of the building trades, that's their same philosophy. (**0001-8-3** [Johnson, Michael])

Comment: Along with the fact that we're going to be able to provide these jobs for working men and women during the time of construction, a lot of young people will go out there on those particular projects and be trained with a skill in a technical high-level industry and be able to take those skills back out into the community and be able to work on other projects and sustain their families for the rest of their lives. And in addition to that, for those of you that don't realize it, once these plants are built that's not the end of it. People will go back on a regular basis to

maintain, update, and upgrade these plants. It's a system that is good for the community, good for the workers. (**0002-13-5** [Simpson, Roce])

Response: *Impacts on local employment will be addressed in Chapters 4, 5, and 7 of the EIS.*

Comment: I do want to say that I think the whole discussion of the jobs that might be brought to this community, it is and should be irrelevant to an environmental study. I know that there is a socioeconomic aspect of it, and we're going to be addressing the socioeconomic, again very adverse impacts if the transmission lines were to go along the U.S. 1 corridor. (**0001-21-7** [Lerner, Cindy])

Comment: I can understand that folks in Florida City and Homestead may be interested in grabbing that relatively small amount of jobs that could come from an investment that's focused down here. But speaking regionally, of course, that's money that's taken out of the hides of everyone in the rate base. If it came right down to trying to make more jobs, well, with this amount of money I figure we could build about 50 new sports arenas for billionaire ball teams and the Heat, I think they deserve a new arena by now. That other one is getting old and they've got these three new players. It's not just about jobs. And I think in reality that should pretty much be out of scope for our discussion. (**0001-24-5** [Harum-Alvarez, Albert])

Response: *The Council on Environmental Quality guidance for implementing NEPA includes a discussion of economic or social effects when these are interrelated with natural or physical environmental effects. NRC guidance for implementing NEPA includes the analysis of employment impacts from construction and operation activities (including transmission lines) among the socioeconomic impacts to be analyzed in environmental reviews of nuclear power plants. The socioeconomic impacts of construction and operation of proposed Turkey Point Units 6 and 7 will be assessed in Chapters 4, 5, and 7 of the EIS.*

Comment: And, by the way, all the folks that are up here talking about jobs. I took a job about a month ago with a solar company installing solar installation panels on a ranger station in Biscayne National Park. That is as blue collar a job as any blue collar work I've ever done; it's construction work; it's electrical work; it's roofing; it's tiling. It's blue collar work, it produces lots of jobs. People sometimes think solar is people going up to a rooftop and meditating on the sun or something like that. It's nothing to do with that. It's the construction trades installing solar panels which are existing right now. The jobs that this plant will create are located in Homestead. If we did solar on rooftops throughout the service area of FP&L, we would be creating jobs throughout their entire service area. That's a big consideration. (**0002-14-4** [Schwartz, Matthew])

Response: *Alternative energy sources, including solar power, will be discussed in Chapter 9 of the EIS.*

Comment: People come to South Dade to go to Everglades National Park or Biscayne National Park. Business in the area benefit from that tourism and provide services to people who are going to visit those parks. So people will be affected and the locals in that way as well. (**0002-16-3** [Shlackman, Mara])

Comment: Construction of transmission towers and access roads in either corridor could impact visitor experiences. Heavy equipment including dump trucks, bulldozers, excavators and cranes would be used for construction of transmission lines. Qualities of the existing visitor experience such as primitiveness and solitude may be impacted. (**0025-3-38** [Kimball, Dan] [Lewis, Mark])

Comment: Natural vistas provide park visitors with an immediate and lasting sensory experience that strongly conveys the character of a national park. The proposed transmission lines, towers and associated roads could adversely affect the visitor's appreciation of the visual viewshed over large areas. The transmission lines and structures would be visible within the park for many miles away. Because of the flat topography and the broad unobstructed vistas, visitors on the Tamiami Trail, and to a lesser extent, visitors to Shark Valley and the Chekika areas, as well as visitors on airboat tours, would be able to see the transmission lines and structures. The transmission facilities would be an intrusion on the natural scenery of the Everglades and detract from the visitors' ability to appreciate the park. For visitors near the L 31-N canal, the towers and transmission lines would dominate the viewshed. These impacts would be permanent. A separate viewshed analysis should be prepared for scenic and visual impacts on the visitor experience. (**0025-3-39** [Kimball, Dan] [Lewis, Mark])

Comment: Similar impacts to viewsheds could occur elsewhere in the Western Transmission Corridor in Water Conservation Area 3B, north of the park, the Southern Glades Management Area, east of the park and in the Model Lands between U.S. 1 and the Turkey Point site. (**0025-3-40** [Kimball, Dan] [Lewis, Mark])

Comment: Short-term impacts would be expected from construction and maintenance activities and transmission line monitoring overflights. A corona effect from the proposed new lines (audible noise) may increase in the long-term. (**0025-3-46** [Kimball, Dan] [Lewis, Mark])

Response: *The expected impact of building and operating proposed Turkey Point Units 6 and 7 on local recreational areas, including Everglades National Park and Biscayne National Park, will be assessed in Chapters 4, 5, and 7 of the EIS.*

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse impacts of the creation of construction jobs, temporary jobs, and permanent jobs, please provide them. (**0022-4-16** [Reynolds, Laura])

Response: *This potential impacts of building and operating proposed Turkey Point Units 6 and 7 on employment and the effects of job creation on the local infrastructure and public services will be discussed in Chapters 4, 5, and 7, based on the affected environment described in Chapter 2. The EIS will include citations for documents used in its preparation.*

Comment: Transportation Subsection indicates that the Homestead Extension of Florida's Turnpike (SR 821) and South Dixie Highway (US 1/SR 5) are the major transportation corridors for north-south movement in Miami-Dade County. The traffic impact data and analyses presented in Appendices 10.7.4.1 (Traffic Study Peak Construction) and 10.7.4.2 (Traffic Study

Operations Analysis) does not consider the impact of the construction and operation of Units 6 and 7 on these two regional corridors. (**0023-2-23** [LaFerrier, Marc])

Comment: The assertion that the proposed access road from the Turkey Point Units 6 and 7 site to theoretical SW 137 Avenue along theoretical SW 359 Street will be improved within the transmission line right-of-way is premature. The traffic studies contained in Appendices 10.7.4.1 and 10.7.4.2 do not consider other alternative roadways such as SW 344 Street and transportation demand management strategies. (**0023-2-24** [LaFerrier, Marc])

Comment: [Miami-Dade County Planning and Zoning] staff have the following concerns regarding the traffic study: the assumptions; the methodology; the impact study area; the lack of consideration of alternative roadways including SW 328 Street and SW 344 Street; and the lack of consideration of transportation demand management programs to reduce the overall traffic demand and use of single occupant vehicles. (**0023-2-25** [LaFerrier, Marc])

Comment: The consultant should identify the programmed transportation projects located within the Study Area for roadways and intersections listed in the 2010 Transportation Improvement Program (TIP); and identify the planned transportation projects located within the Study Area listed in Priority I, II and III of the 2030 Long Range Transportation Plan. (**0023-2-26** [LaFerrier, Marc])

Comment: The expected increase in non-development traffic and traffic from other previously approved and unbuilt development should be accounted for in the future years. (**0023-2-27** [LaFerrier, Marc])

Comment: Prior to the assumption of new roadway construction (SW 359 Street), traffic impact analyses with the existing and improved existing roadways for concurrency year (usually 3 years in the future), construction opening year (2011), construction peak year (2016) and normal operational year (2020) should be provided. (**0023-2-28** [LaFerrier, Marc])

Comment: Please note that LOS standards for roadways outside UDB are different than within UDB (**0023-2-29** [LaFerrier, Marc])

Comment: Include bicycle facilities as part of the road construction. (**0023-2-4** [LaFerrier, Marc])

Comment: Options for shuttle service should be explored. (**0023-3-1** [LaFerrier, Marc])

Response: *These comments refer to the SCA submitted to the State of Florida by FPL, but they indicate an interest in the potential impacts of the proposed plant on transportation. The potential impacts of building and operating proposed Turkey Point Units 6 and 7 on transportation will be discussed in Chapters 4, 5, and 7, based on the affected environment described in Chapter 2.*

Comment: Application does not supply sufficient design and placement information on Eastern corridor and location-specific pole placement to determine whether this activity is well designed and conducive to both pedestrian and transit use, and architecturally attractive. (**0023-3-34** [LaFerrier, Marc])

Response: *This comment refers to the SCA submitted to the State of Florida by FPL, but it indicates an interest in the potential impacts of the proposed transmission lines on land use, transportation, and aesthetics. The potential impacts of building and operating the transmission lines on land use, transportation, and aesthetics will be discussed in Chapters 4, 5, and 7, based on the affected environment described in Chapter 2.*

Comment: The proposed access roads are outside the existing site of the FPL power plant and are therefore subject to land use/zoning consistency determinations. Such access roadways will be subject to amendments to the Comprehensive Development Master Plan (CDMP). (**0023-1-53** [LaFerrier, Marc])

Comment: Application fails to consider the County's Greenway Plans and Parks and Open Space System Master Plan. The County's Preferred Corridor for the proposed Biscayne Trail Segment D and a portion of the southern route of the Biscayne-Everglades Greenway is located along the north side of SW 328 St. (North Canal Dr.). (**0023-2-2** [LaFerrier, Marc])

Comment: The County's Preferred Corridor for the Biscayne Trail north-south leg is located along SW 137 Av. from SW 328 Av. to Card Sound Rd. The County's Preferred Corridor for the southeastern leg of the Biscayne Trail also extends southeast along the L-31 E canal from SW 328 St. to Card Sound Rd. (**0023-2-3** [LaFerrier, Marc])

Comment: Information is not provided on how activities will impact approved Urban Centers and their respective Regulating Plans and will be in compliance with the County's Urban Design Manual. (**0023-3-36** [LaFerrier, Marc])

Response: *These comments refer to the SCA submitted to the State of Florida by FPL, but they indicate an interest in the consistency of proposed Turkey Point Units 6 and 7 with existing zoning and land use plans. The general consistency of building and operating the proposed units with existing zoning and land-use plans will be discussed in Chapters 4, 5, and 7.*

Comment: [A]pparently this would represent for the economy, after the 40 years of the building when the two plants are finally working, savings in energy costs for about $90 million. So, we believe this is very important. We have analyzed the project and realize that when the two plants that will be built here at Turkey Point are finally constructed, this will afford us the things that we need in order to have a better future. We, thus, once again, applaud FPL for its vision and for the time that it has invested in providing us with a better opportunity for our future. (**0002-10-3** [Alexander, William])

Response: *This comment refers to savings in fuel costs projected for the life of the proposed project as part of the State of Florida's Determination of Need. Need for power will be addressed in Chapter 8 of the EIS. The expected socioeconomic impact of building and operating proposed Turkey Point Units 6 and 7, including impacts on local employment and earnings, local tax revenues, in-migration, local infrastructure, and public services, will be discussed in Chapters 4, 5, and 7.*

Comment: The plant is there. Fortunately we've had the plant. It's the Government's idea of trying to provide South Florida power has made us where we've grown to this point, where we

have this power, where we have the development that we have. Okay. We have to keep going. It's not going to stop unless we put doors up there on the county line that says, we can't move anybody else in here. I don't see any difference between a plant down there and using the water, okay, or another 40,000 people moving into Dade County every two years. (**0002-12-5** [McHugh, John])

Response: *This comment suggests impacts on resources such as water would occur independently of the units. Impacts on water and other resources will be discussed in Chapters 4, 5, and 7 of the EIS.*

D.1.12 Comments Concerning Historic and Cultural Resources

Comment: This office reviewed the referenced project for possible impact to historic properties listed, or eligible for listing, in the National Register of Historic Places. The review was conducted in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, 36 CFR Part 800: Protection of Historic Properties and the National Environmental Policy Act of 1969, as amended. In October 2008, December 2008, March, 2009, and April 2009, Janus Research conducted an archaeological and historical Phase I survey of the proposed Turkey Point Units 6 & 7 site, associated non-linear facilities, and spoils areas on plat property on behalf of the Florida Power & Light Company. Janus Research identified no cultural resources within the project area during the investigation. Our office found the submitted report complete and sufficient in accordance With Chapter 1 A-46, Florida Administrative Code. Based on the information provided, it is the opinion of this office that the proposed development will have no effect on historic properties. However, we also concur with Janus Research that, prior to construction, an unanticipated finds plan should be developed to outline the procedures and identify personnel to be contacted if significant archaeological material or human remains are encountered during construction. In 2009, Janus Research conducted background research to identify previously recorded archaeological resources within 100 feet and historic cultural resources within 500 feet of the associated linear facilities, and to identify areas of high, medium, and low probability for the presence of unrecorded cultural resources. (**0013-1** [Kammerer, Laura])

Comment: Of particular concern would be design compatibility related to shadows, traffic, height, bulk and scale of architectural elements and how pole placement and design will address these standards. (**0023-3-32** [LaFerrier, Marc])

Comment: Design details, including proposed materials, visual buffering, complementary vegetation, and fencing must be addressed to determine consistency with LU-4D for each proposed new pole and corridor alignments generally. (**0023-3-33** [LaFerrier, Marc])

Comment: Archeological surveys of the entire West Transmission Corridor will be needed. An archeological survey conducted in 2009 in FPL's West Preferred Corridor within ENP found no evidence of prehistoric humans. (**0025-3-41** [Kimball, Dan] [Lewis, Mark])

Comment: Our utmost concern will be to ensure that areas of archaeological importance will be indentified and protected from any ground disturbing activities, and that all designated historic sites and structures, as well as those eligible for designation, will be identified,

documented and protected from any new construction or view shed obstruction associated with both the new on-site structures and the transmission line corridors and related structures. (**0026-1** [Kauffman, Kathleen])

Response: *The potential impacts of building and operating proposed Turkey Point Units 6 and 7 on historic and cultural resources will be discussed in Chapters 4, 5, and 7, based on the affected environment as described in Chapter 2. The EIS will include citations for documents used in its preparation. As stated in the application, an unanticipated-finds plan will be developed.*

Comment: The application states that the Florida Master Site File forms (FMSF) maintained by the Bureau of Historic Preservation, Division of Historical Resources were reviewed to determine whether any historic or archaeological sites were in the areas of potential effects. However, the County's Office of Historic and Archaeological Resources was not given the opportunity to determine whether these areas impacted locally designated sites or sites which have been determined as eligible for designation. In addition, the application makes the assumption that the probability of impacts on undiscovered sites is considered extremely low. This conclusion is not supported without coordination with the Office of Historic and Archaeological Resources. Sites that the County has surveyed and identified, but may have not yet designated, would not necessarily be recorded in FMSF forms. (**0023-2-1** [LaFerrier, Marc])

Response: *The potential impacts of building and operating proposed Turkey Point Units 6 and 7 on historic and cultural resources will be discussed in Chapters 4, 5, and 7, based on the affected environment described in Chapter 2. The information sources from the Miami-Dade County Office of Historic and Archaeological Resources will be considered in this assessment. The EIS will include citations for documents used in its preparation.*

Comment: We are aware that the Department of State's Division of all Historical Resources has already made recommendations. We concur with those recommendations and also offer the following:

1. For all areas that have not been previously surveyed, our staff shall be notified once surveying has commenced. The County archaeologist will have the opportunity to comment on any new visual surveys performed to determine areas of high archaeological probability.
2. We concur with the development of an unanticipated finds plan, and request that the Office of Historic and Archaeological Resources be added to the contact list, should a find occur.
3. View sheds and view corridors shall be considered during the identification of the Area of Potential Effect as part of the surveys for potential impacts to historic sites and structures.
4. Copies of all new FMSF forms, created as a result of historic or archaeological resource surveys, shall be provided to our office.
5. The Office of Historic and Archaeological Resources shall have the opportunity to review and comment on any survey findings related to historic resources or eligible resources that are found within or in close proximity to the transmission line corridors.
6. The Office or Historic and Archaeological Resources shall be included in determining the Area of Potential Effect (APE) and shall be permitted to review and comment on any additional reconnaissance level historic resource surveys conducted in such areas.

(**0026-2** [Kauffman, Kathleen])

Response: *The potential impacts of building and operating proposed Turkey Point Units 6 and 7 on historic and cultural resources will be discussed in Chapters 4, 5, and 7, based on the affected environment described in Chapter 2. The EIS will include citations for documents used in its preparation. The Florida State Historic Preservation Office and Miami-Dade County will be consulted in accordance with the National Historic Preservation Act.*

D.1.13 Comments Concerning Meteorology and Air Quality

Comment: In addition, we would like you to consider in the environmental impact statement, the impacts that 30 million gallons a day of steam being released into the atmosphere could have on wildlife, Biscayne Bay, and, of course, agriculture (**0001-7-7** [MacLaren, Kaitlin])

Comment: According to FPL information, the six cooling towers for TP 6&7 will evaporate 41.5 MGD of water which will be .0005% particulates. That is 20,750 gallons of particulates 24/7. The FPL model diagram shows the dispersion of that vapor in a neat pattern around the plant assuming average wind conditions. However, the average does not fully reflect the many days down here when the wind blows from the SE at 15 to 25 MPH for hours on end. That would carry the now condensed and concentrated residue of TP over the people and the crops to the west and northwest. (**0016-2** [White, Barry])

Comment: [T]he effect of aerial dispersal of biocides from the cooling towers on surrounding areas, including surface and groundwater. (**0023-1-16** [LaFerrier, Marc])

Comment: The atmospheric deposition from the cooling towers is projected to extend into the surface waters of Biscayne National Park. Atmospheric deposition rates and for EPOCs from the proposed cooling towers should be quantified and include incremental projections over the life span of Units 6&7. (**0025-3-25** [Kimball, Dan] [Lewis, Mark])

Response: *The reactor cooling system including the water treatment, its operation and steam released to the atmosphere, and associated salt drift and other potential impacts of the cooling-system operation will be discussed in Chapter 5 of the EIS.*

Comment: Construction related emissions and other temporary or secondary emissions are not included in the PSD emissions analysis. The impacts from these activities on air quality should be discussed qualitatively in the Draft EIS. Air emissions of criteria and toxic pollutants should be addressed. A discussion of the designation status of the area in which the units will be built should also be included in the document. Finally, the Draft EIS should discuss any issues or concerns regarding obtaining the required Title V operating permit once the units are operational. (**0014-21** [Mueller, Heinz])

Comment: Please state the cumulative emissions of construction activities for each of the greenhouse gases including water vapor, carbon dioxide, methane, nitrous oxide, and ozone. (**0022-4-3** [Reynolds, Laura])

Comment: Please state the cumulative emissions of operation activities for each of the greenhouse gases including water vapor, carbon dioxide, methane, nitrous oxide, and ozone. (**0022-4-4** [Reynolds, Laura])

Response: *Environmental impacts associated with building and operating nuclear plants, including greenhouse gas emissions, will be addressed in EIS Chapters 4, 5, and 7, respectively. Greenhouse gas emissions associated with the fuel cycle will be presented in Chapter 6. A discussion of the status of air quality in the area will be presented in Chapter 2.*

Comment: Nuclear plants also do not operate well in hot conditions, as evidenced by recent instances in the US and France where nuclear plants shut themselves down, due to high temperatures in the environment. (**0021-11** [Wilansky, Laura])

Response: *The reactor cooling system, including the water-source treatment and heat dissipation during operation, will be discussed in Chapter 3 of the EIS. The potential impacts of the cooling-system operation will be addressed in Chapter 5 of the EIS. The existing climatological conditions and projected change in temperature over the licensing period will be discussed in Chapter 2.*

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to the varieties and concentrations of airborne "emerging pollutants of concern" (EPOCs) as a result of using reclaimed wastewater for cooling purposes, please provide them. (**0022-2-1** [Reynolds, Laura])

Comment: Please state, specifically, all additives and all additive quantities that will be released to the atmosphere in gaseous, particulate, or droplet form, from the cooling towers and cooling water (**0022-4-2** [Reynolds, Laura])

Comment: There is concern that constituents in the cooling water will be emitted in the aerosol/drift exhaust from the cooling towers.... (**0023-1-26** [LaFerrier, Marc])

Comment: Provide technical discussion and analysis of the effect that the cooling tower (heat transfer) process has on the reclaim water constituents and the facility's air emissions (both criteria and hazardous air pollutants). Source water analysis constituents to be addressed include: total dissolved solids, total suspended solids, salinity, organics, metals, and 'EPOCs' (emerging pollutants of concern) addressed in USGS 2006 Report identifying organic wastewater compounds, pharmaceutical compounds, antibiotic compounds, and hormones detected in effluent from the South District WW Treatment Plant). In addition to PM and PM10, provide emissions calculations for other criteria pollutants and hazardous air pollutants. (**0023-1-28** [LaFerrier, Marc])

Comment: The COL proposes the use of tertiary treated wastewater as the primary cooling water supply source for Units 6&7. The environmental risk associated with the aerial dispersal and possible subsurface release of micro-constituents, sometimes referred to as Environmental Pollutants of Concern (EPOCs), commonly associated with treated waste water requires further evaluation. Treated wastewater from municipal sewage commonly includes pharmaceuticals and personal care products (PPCPs), as well as various endocrine disrupter compounds (EDCs), and frequently heavy metals and other contaminates not normally removed in tertiary treatment. (**0025-2-3** [Kimball, Dan] [Lewis, Mark])

Response: *Potential impacts to the aquatic and terrestrial ecology environment, via the air pathway impacts associated with cooling tower "drift" as a result of using reclaimed water in the cooling towers, will be discussed in Chapters 5 and 7 of the EIS, based on the affected environment as described in Chapter 2.*

Comment: Please state the amount of heat that will be discharged into the atmosphere from units 6&7 and state the temperature differential between the discharged heat and the atmosphere. Please state the amount of water vapor that will be discharged into the atmosphere from units 6&7 and state the moisture differential between the discharged water vapor and the atmosphere. (**0022-2-16** [Reynolds, Laura])

Response: *The reactor cooling system, including the water-source treatment and heat dissipation, will be discussed in Chapter 3 of the EIS. The potential impacts of the cooling-system operation on the frequency of plume visibility will be addressed in Chapter 5 under meteorology and air quality. The affected atmospheric environment, including temperature and moisture, will be discussed in Chapter 2.*

Comment: Please state the amount of change units 6&7 will make to local weather conditions. Please state the amount of change units 6&7 will make to hurricane formation, intensity, and longevity. Please state the amount of change units 6&7 will make to tornado formation, intensity, and longevity. (**0022-2-18** [Reynolds, Laura])

Response: *The impacts of operating proposed Turkey Point Units 6 and 7 on local meteorology will be presented in Chapter 5 of the EIS. The staff will consider in its evaluation whether more remote potential meteorological impacts from the plant are likely. However, past experience with large power stations would indicate that there would be no impact to the formation, intensity, or longevity of tornados and hurricanes.*

Comment: The application does not provide sufficient information to determine facility emissions for the limestone mining operations and grading & fill activities. (**0023-3-16** [LaFerrier, Marc])

Response: *Environmental impacts associated with building proposed Turkey Point Units 6 and 7 will be addressed in Chapter 4 of the EIS. The impacts of building-related air emissions, including those from activities at FPL-owned fill sources and from grading and fill activities, will be estimated.*

Comment: Applicant needs to provide information sufficient to determine whether open burning operations would be consistent with the requirements of Chapter 24. (**0023-4-7** [LaFerrier, Marc])

Response: *Environmental impacts associated with building proposed Turkey Point Units 6 and 7 will be addressed in Chapter 4 of the EIS. The building-related air emissions and related impacts on air quality, as well as the emissions from any open burning of vegetation, will be estimated.*

Comment: The application provided insufficient details related to the General Purpose Diesel Engines on what equipment the engines are to service or what fuel tanks and day tanks will be associated with the engines. (**0023-4-8** [LaFerrier, Marc])

Comment: Construction and maintenance activities would impact air quality. (**0025-3-45** [Kimball, Dan] [Lewis, Mark])

Response: *Environmental impacts associated with building and operating proposed Turkey Point Units 6 and 7 will be addressed in EIS Chapters 4 and 5, respectively. Emissions associated with diesel fueled engines will also be discussed in Chapters 4 and 5.*

D.1.14 Comments Concerning Health – Nonradiological

Comment: These two gigantic, enormous 1,000 megawatt each nuclear generators are going to be cooled with recycled sewage. Let's say that, recycled sewage. That's what's going into these cooling towers. There's no way to get all the pharmaceuticals, all the chemicals that we flush down our toilets, out of that water that's going to be going through these plants. When that water goes through the cooling towers they're going to be released to steam, droplets are coming out with that water vapor, and lots of stuff is going to be in those droplets. Lots and lots of those chemicals are going to be in those droplets. And that's going to be sprayed out over Biscayne National Park, Biscayne Bay, and the City of Homestead, which already has extremely dubious air and water to begin with for many of the reasons people have talked about. (**0002-14-7** [Schwartz, Matthew])

Comment: And what about the workers at the plant who will have to breath that stuff 8 hours a day? What would OSHA say about that? And the particulates will be a concentration of every carcinogen known to man, having come originally from waste water. What TP 6&7 really is is the best still in the world for concentrating the highest amount of pollutants and efficiently distributing it over the land. (**0016-3** [White, Barry])

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse impacts on humans and/or the environment of airborne pathogens from the Turkey Point FPL power station as a result of using reclaimed wastewater for cooling purposes, please provide them. (**0022-1-15** [Reynolds, Laura])

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to the number of fatal and non-fatal diseases from airborne toxic matter as a result of using reclaimed wastewater for cooling purposes, please provide them. (**0022-1-18** [Reynolds, Laura])

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to the varieties and concentrations of known airborne toxic matter as a result of using reclaimed wastewater for cooling purposes, please provide them. (**0022-1-20** [Reynolds, Laura])

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to

the number of fatal and non-fatal diseases from airborne EPOCs as a result of using reclaimed wastewater for cooling purposes, please provide them. (**0022-2-2** [Reynolds, Laura])

Response: *These comments concern the impacts of chemicals in the cooling tower drift from proposed Turkey Point Units 6 and 7 on the public and workers. The planned reactor-cooling system, including the use of reclaimed water and saltwater, along with water treatment, the expected vapor and droplet release to the atmosphere and associated "drift," and associated potential impacts, will be discussed in Chapter 5 of the EIS. These impacts will be assessed within the context of the affected environment described in Chapter 2. Cumulative impacts from past, present, or reasonably foreseeable future actions will be discussed in Chapter 7, and alternatives to the proposed cooling system will be discussed in Chapter 9. The EIS will include citations for documents used in its preparation.*

Comment: I've also heard that transmission lines would buzz, cause radiation problems that may cause cancer, especially breast cancer, in a lot of people, as well as that it might go through our Everglades as well as down US-1. (**0002-8-6** [O'Katy, Jessica])

Comment: [CASE submitted an article titled, "Recent Biomedical Literature on Health Risks of Power Transmission Lines" by Philip Stoddard, Dept Biological Sciences, Florida International University. The article expressed concern about exposure to magnetic fields.]
(**0003-2-1** [White, Barry])

Comment: Information on the potential degradation of health, safety, tranquility, character, and overall welfare of residential neighborhood conditions with respect to transmission line corridors has not been provided. Information should include recent academic studies regarding EMFs and high kV electrical transmissions. (**0023-3-35** [LaFerrier, Marc])

Comment: The health of our children and families will be in grave danger! Peer reviewed medical literature shows Alzheimer's and senile dementia rates are doubled in people living near power lines. (**0031-3** [De Villiers, Elena])

Response: *These comments concern the impacts of living near transmission line corridors. Health and/or other impacts from noise, electromagnetic fields, and/or land use associated with the planned upgrade and construction of transmission lines will be addressed in Chapters 4 and 5 of the EIS, based on the affected environment described in Chapter 2. Cumulative effects will be addressed in Chapter 7.*

Comment: Areas surrounding the Turkey Point nuclear power plant are at high risk for exposed pollutants, including asbestos, mercury, and 174 detected carcinogens including tritium which was found to be leaking from over a quarter of all nuclear plants in the United States. Expanding the ground that Turkey Point inhabits would bring these pollutants closer to the National Park reserve areas, bringing endangered and rehabilitated marine life and ecology into severe danger. (**0007-4** [Burris, Jessica])

Response: *This comment concerns the potential impacts on biota of pollutants released from proposed Turkey Point Units 6 and 7. The ecological health impacts of radiological and non-radiological releases from nuclear power plants during building and operating the proposed*

units will be discussed in Chapters 4 and 5 of the EIS, respectively, within the context of the affected environment described in Chapter 2. The cumulative impacts from the proposed action when added to those of past, present, or reasonably foreseeable future actions will be discussed in Chapter 7.

Comment: Consider the full the impacts of noise and light pollution concerns to people, animals, native plants and wetlands, environmentally endangered lands, and provide the appropriate mitigation strategies. (**0019-6** [Hamilton, Karen])

Comment: Potential soundscape impacts may increase over current levels in Biscayne National Park from construction, operation and security (additional overflights by military jets). These impacts should be assessed and quantified. (**0025-3-28** [Kimball, Dan] [Lewis, Mark])

Response: *These comments concern the potential impacts of noise and light in the environs of proposed Turkey Point Units 6 and 7. The potential impacts of noise and light pollution on the public and the environment during the building and operating of the proposed units will be addressed in Chapters 4 and 5 of the EIS, respectively, within the context of the affected environment described in Chapter 2. Cumulative impacts from the proposed action when added to those of past, present, or reasonably foreseeable future actions will be discussed in Chapter 7.*

Comment: The generation of hazardous wastes (as defined in Section 24-5) and other regulated non-hazardous wastes is mentioned throughout the application. The size of tanks or containers is not specified nor their locations, nor details of the release detection methods or pollution prevention measures to be implemented. (**0023-1-11** [LaFerrier, Marc])

Response: *This comment concerns the management of hazardous and non-hazardous wastes for proposed Turkey Point Units 6 and 7. The impacts from the generation, handling, and disposal of hazardous and non-hazardous waste material from building and operating the proposed units will be addressed in Chapters 4 and 5 of the EIS, respectively, within the context of the affected environment described in Chapter 2. Cumulative impacts from the proposed action when added to those of past, present, or reasonably foreseeable future actions will be discussed in Chapter 7.*

D.1.15 Comments Concerning Health – Radiological

Comment: The NRC knows full well that in 1988 and 1990, Congress passed the Radiation Exposed Veterans Compensation Act and stipulated that 21 categories of cancer are attributable either as a causative or contributory factor to the exposure to ionizing radiation from radioactive fallout. The NRC knows full well that induced genetic damage and genetic mutations are precursors from manifesting over 21 categories of cancer as stipulated by the Congress. The NRC knows full well that cancer is a genetic process and that ionizing radiation causes genetic damage and that genetic damage and cancer are inextricably intertwined. You cannot separate the two. However, the NRC disingenuously avoided mention in its supplemental environmental impact statement of August 2007, in a Diablo Canyon license proceeding, that small children -- they omitted this -- that small children, pregnant women, women of childbearing age, and the elderly are seriously impacted and vulnerable to acquiring

induced genetic damage from exposure to ionizing radiation of a magnitude as little as 5 rems. Now, because of the concerns linking ionizing radiation to genetic damage, the Atomic Energy Commission provided the initial funding for the Human Genome Project. Most people don't know that. That Project today is jointly funded by your parent organization, the Department of Energy, and the National Institutes of Health. (**0001-13-6** [Smilan, Stan])

Comment: The health effects on communities has not been adequately studied, and the presence of childhood leukemia clusters in the vicinity of nuke plants raises serious questions about the possible connections. It is to these curious questions about the environmental impacts on public health that I request that the NRC add to its scope of inquiry. (**0001-16-4** [Showen, Steve])

Comment: Public health is ultimately what you affect most in your decision-making. We can't go back to FPL, or the M. Dade Com. College Homestead, or your members in our Capitol in 10 years and say please cleanse out our circulatory systems of our bodies and replace them. Vulnerable people depend on your wisdom now in history to choose the safest path for the citizens. (**0011-1** [, Anonymous])

Comment: We should not create the GUARANTEED RISK of radiation, toxic waste, birth defects, cancers, fish kills, and all the other consequences which can and will result from building Turkey Point 6 and 7. (**0021-14** [Wilansky, Laura])

Comment: I ask you to include the true costs of nuclear plants throughout their entire life cycle in your environmental calculations, including the reality of enormous risks to health and life. (**0021-19** [Wilansky, Laura])

Response: *These comments concern possible health effects from radiation exposure. Chapter 5 of the EIS will address the potential radiation doses and the associated health effects from operation of proposed Turkey Point Units 6 and 7. The NRC's regulatory limits for radiological protection are set to protect workers and the public from the harmful health effects of radiation on humans. These radiation standards reflect extensive scientific study by national and international standard setting organizations and incorporate conservative assumptions and models to account for differences in gender and age so as to ensure that workers and all members of the public are adequately protected from radiation.*

Comment: In addition, the public is largely unaware that radioactive emissions are permitted legally in normal operations of nuclear plants. Also, a number of nuke plants have leaked radioactive effluent into underground drinking aquifers. (**0001-16-3** [Showen, Steve])

Comment: I was looking at some of the documents you left in the back of the room. And in terms of tritium your own periodical says, nuclear power plants have reported abnormal releases of water containing tritium resulting in groundwater contamination. This is spooky stuff. And we would hope that any such releases would not go anywhere outside the boundary if such releases actually occur, and that information, if it's out there, would be immediately released to agencies that deal with water resources so we can deal with the potential implications as a result of such potential contamination. (**0002-3-7** [Walker, Tom])

Comment: One function of wetlands is to filter water as it runs through its natural ecosystem before reaching primary waterways where it is likely to be ingested. In addition to adding pollutants to the Biscayne area outside of Turkey Point with this proposed expansion the reduction of wetlands in the area will cause further harm by the natural reduction of water filtration before entering the surrounding communities. This includes the reduction of a filtration system for radioactive leakage present in groundwater leakage that is normally released from all U.S nuclear power plants. The NRC permits up to 400 gallons per day of low level leakage to be deposited into the environment surrounding nuclear power plants. Without wetlands to filter this pollution, residents of the surrounding area are directly vulnerable to this waste. (**0007-5** [Burris, Jessica])

Response: *These comments concern the potential release of radioactive material to the environment by proposed Turkey Point Units 6 and 7. Chapter 5 of the EIS will address the expected releases of radioactive material in liquid and gaseous effluents, the impacts of those releases on humans and biota other than humans, and the applicant's effluent and environmental radiological monitoring systems. The results of a licensees radiological effluent and environmental monitoring systems are publicly available in the ADAMS Public Electronic Reading Room and are accessible at* http://www.nrc.gov/reading-rm/adams.html*.*

Comment: [A]lso just got my water report reading from Miami-Dade. And I found it interesting that not only was there uranium, which we don't have here in our water, but that the levels of it were much higher closer to Turkey Point than they were in Northern Miami. I thought that was very interesting. And when I read the reason for uranium being in the water, it said that it was from natural sources. So I found that to be extremely worrisome. (**0002-8-8** [O'Katy, Jessica])

Comment: Tritium and Strontium 90 are present in the area and research is currently being done to establish their levels and concentrations (**0012-8** [Payne, Nkenga])

Response: *These comments concern the presence of radioactive materials in the environment near proposed Turkey Point Units 6 and 7. Chapter 2 of the EIS will address the current radiological environment at the proposed site for the proposed units.*

Comment: Two new, unnecessary plants are guaranteed to bring more leaks and more radioactive waste to South Florida, and will endanger us that much more. (**0021-9** [Wilansky, Laura])

Comment: At the NRC scoping meeting held in July, a handout (USNRC BACKGROUNDER, February 2010) was available which stated that Nuclear power plants have reported abnormal releases of water containing Tritium, resulting in groundwater contamination. This is also discussed on your website under operating reactors. Obviously, the potential leakage of Tritium from the Turkey Point nuclear power plant is a concern to be analyzed. With this in mind, FKAA request that any Tritium test results from the existing cooling water canals and the aquifer system adjacent to these canals be released for review. If there has been leakage above the background levels in the existing system, continued rate of analysis should be required at more stations, and the source and remedy be found. Also, whether or not there is Tritium above background levels in the existing system, the EIS should include the requirement for continued

measurements of Tritium at the interface of the reactors including water canals, strategic monitoring points, and downstream monitoring locations. (**0024-4** [Walker, Tom])

Response: *These comments concern potential groundwater contamination by inadvertent leaks of liquids containing tritium from the Turkey Point site. Chapter 2 of the EIS will address the current radiological environment at the proposed site for proposed Turkey Point Units 6 and 7. Chapter 5 of the EIS will discuss the applicant's effluent and environmental radiological monitoring systems for the proposed units.*

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse impacts of deep well injection of radioactive wastes including annual expected amounts and the expected cumulative amount of each isotope for the duration of the requested operating license, please provide them. (**0022-4-10** [Reynolds, Laura])

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse impacts of airborne radioactive releases to the atmosphere including best practices, precautions, the cumulative number of expected non-lethal cancers, and the cumulative number of expected lethal cancers for the duration of the requested operating license, please provide them. (**0022-4-11** [Reynolds, Laura])

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse radiological impacts of units 6 & 7 as a result of a sea level rise of 10 meters, please provide them. (**0022-4-12** [Reynolds, Laura])

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse impacts of leaking buried pipes, please provide them. (**0022-4-15** [Reynolds, Laura])

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse impacts of securing the storage of low-level solid radioactive wastes, including locations, structures, containers, damage from missiles, airborne solid wastes, water ingress and egress, fires, and cleanup, in the event of a tornado watch or warning is issued for the Turkey Point area, please provide them. (**0022-4-8** [Reynolds, Laura])

Response: *These comments concern the radiological impacts of operation of proposed Turkey Point Units 6 and 7, including storage of low-level wastes, release of liquid and gaseous effluents; and inadvertent pipe leaks. These impacts will be addressed in Chapter 5 of the EIS. The EIS will include citations for documents used in its preparation.*

D.1.16 Comments Concerning Nonradiological Waste

Comment: The use of hazardous materials (e.g. treatment chemicals, solvents, paints, lubricants, etc.) is mentioned throughout the application for maintenance operations, water and

wastewater (influent and effluent) treatment systems. The size of tanks or containers is not specified nor are their locations identified. In addition, no details of the release detection methods or pollution prevention measures to be implemented are provided. (**0023-1-60** [LaFerrier, Marc])

Comment: Liquid waste other than domestic sewage will be generated, used, and handled at the proposed facility which is not connected to sanitary sewer. The application did not provide sufficient information to evaluate the project with regard to requirements of Section 24-43.1 of the code of Miami-Dade County. (**0023-1-8** [LaFerrier, Marc])

Response: *The generation, management, and treatment or disposal of nonradiological waste will be discussed in Chapters 4 and 5 of the EIS.*

D.1.17 Comments Concerning Accidents – Severe

Comment: Miami-Dade is an extremely population dense area with 1158 people per square mile. Although FP&L and Westinghouse state that the probability of a severe accident is very low for the AP1000, this reactor design has never been built or operated anywhere in the world. (**0001-14-9** [Hancock, Mandy])

Response: *This comment concerns the potential for severe accidents at proposed Turkey Point Units 6 and 7. The impacts of postulated accidents including severe accidents will be addressed in Chapter 5 of the EIS.*

D.1.18 Comments Concerning the Uranium Fuel Cycle

Comment: With the addition of the nuclear power plant 6 and 7, it will be doubling the waste that's being stored out at Turkey Point. I ask the Nuclear Regulatory Commission, what is being done nationally for the storage of nuclear power plant waste? I don't see enough being done nationally for the storage and safety of this nuclear waste. (**0001-10-1** [Marinelli, Francis J.])

Comment: Waste is contained and moved, a potential problem. It is moved to Yucca Mountain that's sitting on a fault line. We are saying it's safe for now but the safety has not been proven. (**0001-11-5** [Amor, Valerie])

Comment: As the NRC is aware, FPL already operates three reactors here in Florida and is proposing to build two more. FPL also proposes to build an onsite storage facility to deal with the high level radioactive waste already overflowing in the spent fuel pools. This amount of radioactivity clustered in such a population-dense, hurricane-prone area could create significant safety and health concerns for Floridians. The NRC must address these cumulative impacts. (**0001-14-8** [Hancock, Mandy])

Comment: Tons and tons of nuclear waste are already stockpiled at this plant right now. They were cited. They were fined recently by the Nuclear Regulatory Commission for failure to take care of that waste. There's no place to put it; by the way, there's no place to move it. (**0002-14-13** [Schwartz, Matthew])

Comment: I'd also like to say that from what I've learned at school, that uranium transportation and storage is very dangerous and not something that we should be risking people and the environment's well-being for. (**0002-8-2** [O'Katy, Jessica])

Comment: I am not a nuclear scientist, but my understanding at this time is that the main concern regarding nuclear energy is how to safely store the waste material. If there is a scientific answer to this problem that is safe, I think America would be wise to pursue increasing our use of nuclear energy. (**0005-2** [Bass, Ken])

Comment: [T]he economic and ecological risks associated with the entire nuclear power fuel cycle, are vast, including the long term of safeguarding nuclear waste produced at Turkey Point. (**0012-13** [Payne, Nkenga])

Comment: It is unacceptable to even think of disposing highly toxic and radioactive substances anywhere on or in our beautiful Earth as we do not know the consequences - and there is nothing to stopgap or in place in case these substances have a dire reaction on the earth. (**0028-5** [DiNuzzo, Laura])

Comment: On the surface, the "greener" than dirty coal theme sounds good. Given there are positives and negatives to most situations, this green theme would be the positive. However, all of us involved, including FP&L, would be remiss if we did not consider the negative. In this case, the negative is the stored, on site radioactive waste generated by the Turkey Point plant, and more reactors mean more radioactive waste. This negative must be factored into the greener theme to reflect the true cost of the nuclear facility. Has FP&L factored in this critical cost of how to dispose of radioactive nuclear waste, or will they just continue to store it on site (in a hurricane prone, sea level environment)? Will FP&L send it to an undetermined repository (if one is ever mandated) and at what cost? While the front end looks green, the back end looks dirty. Objectively, the big picture must be duly considered. Decisions that are narrow, short-sighted and reactionary lead to a vulnerable position that can escalate into insurmountable problems (think BP oil, Chernobyl, 3 Mile). Until the above mentioned negatives are resolved, expansion magnifies potential problems. (**0029-3** [Guendelsberger, Debra])

Response: *These comments concern the transportation and disposal of high-level radioactive waste, such as spent fuel. The impact of the uranium fuel cycle, including disposal of high-level radioactive waste and spent fuel, will be addressed in Chapter 6 of the EIS.*

Comment: That's just the tip of the iceberg. There are so many different aspects to a building of these two additional nuclear power plants at Turkey Point. When they built them in 1972 they had never heard of anything such as global warming, such as rising sea levels. Out of their consciousness. Presently, five miles from here is over 2 million pounds of nuclear waste. Five miles from here. As soon as the sea level covers all that up, God knows what's going to happen. (**0001-2-4** [Harris, Walter])

Comment: When sea level rises, what's that going to do to a nuclear plant built in the middle of Biscayne Bay, with storage -- with nuclear waste that cannot be moved because there's nowhere to put it. So this is an extreme danger to our community. (**0002-14-8** [Schwartz, Matthew])

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse radiological impacts of spent fuel storage as a result of a sea level rise of 10 meter. (**0022-4-13** [Reynolds, Laura])

Response: *The environmental impacts of operating and decommissioning proposed Turkey Point Units 6 and 7, including potential impacts associated with sea level rise, will be considered in Chapters 5, 6, and 7 of the EIS.*

Comment: One thing we should consider is, this is not an energy source that gives so-called energy independence. The great bulk of the uranium comes from outside the United States, and there are greenhouse gas emissions in the process of the extraction and processing of that uranium. (**0002-16-5** [Shlackman, Mara])

Comment: In the big environmental picture, companies like FPL that want to build nuclear plants are trying to sell the idea that nuclear energy is a solution to global warming. In fact, the opposite is true. Nuclear energy is neither carbon-free nor emission-free throughout its entire life cycle, which includes a variety of wastes produced by mining uranium and making nuclear fuel, in addition to the aforementioned unsolved problem with spent fuel and other nuclear waste. This waste includes the plants themselves, which operate for a few decades, and then take, at a minimum, hundreds of years to be decommissioned. (**0021-10** [Wilansky, Laura])

Response: *These comments concern the greenhouse gas emissions of the entire fuel cycle and the operation of proposed Turkey Point Units 6 and 7. The impacts of greenhouse gas emissions from the life-cycle of fuel production, construction, operation, and decommissioning of the units will be presented in Chapters 4, 5, and 6 and an appendix of the EIS.*

Comment: We now have the technology to recycle spent nuclear rods. Look to France as a prime example as nuclear energy as a viable energy resource. (**0006-2** [Weins, Brian])

Response: *This comment concerns the potential for recycling spent nuclear fuel. The potential environmental impacts of the fuel cycle from recycling only the uranium from spent nuclear fuel will be addressed in Chapter 6 of the EIS. Recycling uranium and plutonium from spent nuclear fuel will not be addressed in the EIS. While Federal policy no longer prohibits recycling, additional research and development is needed before commercial recycling of spent fuel from U.S. nuclear power reactors would occur.*

Comment: I feel that uranium is not a long-term answer and so that expansion of Turkey Point would not start until a long term after we need it, and that it wouldn't last for that long because we do not have uranium here and we don't have enough of it. (**0002-8-7** [O'Katy, Jessica])

Response: *This comment concerns the availability of uranium to fuel proposed Turkey Point Units 6 and 7. The irretrievable and irreversible commitment of resources, such as uranium, will be addressed in the context of the resources availability in Chapter 10 of the EIS.*

Comment: I ask you to include the true costs of nuclear plants throughout their entire life cycle in your environmental calculations, including the cost of hundreds of years of plant

decommissioning; and the cost of nuclear waste storage for thousands of years to come. (**0021-21** [Wilansky, Laura])

Response: *This comment concerns the cost of the entire fuel cycle including decommissioning and waste disposal. The costs of proposed Turkey Point Units 6 and 7 throughout their entire life cycle, including the costs of decommissioning and nuclear waste storage, will be discussed in Chapter 10 of the EIS.*

D.1.19 Comments Concerning Decommissioning

Comment: This site will also be under SEVERAL FEET of water if global warming continues as it has, or worsens, as scientists predict. If you think killing an oil well is difficult underwater, try decommissioning a nuclear plant! (**0021-6** [Wilansky, Laura])

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse radiological impacts of decommissioning units 6&7 as a result of a sea level rise of 10 meters. (**0022-4-14** [Reynolds, Laura])

Response: *The potential environmental impacts of decommissioning proposed Turkey Point Units 6 and 7 will be addressed in Chapter 6 of the EIS. The EIS will include citations for documents used in its preparation.*

D.1.20 Comments Concerning Related Federal Projects

Comment: The Comprehensive Everglades Restoration Project is a major priority for the Federal and State Government. (**0002-6-4** [Grosso, Richard])

Comment: Models and study explaining how preliminary design of the water management project will tie to the CERP Environmental Restoration Project (Alternative O) missing. (**0023-3-9** [LaFerrier, Marc])

Comment: [The National Park Service has] identified a number of concerns regarding potential adverse impacts of the proposed facilities to the resources and values of Biscayne and Everglades National Parks, to regional water resources and to the Biscayne Bay Coastal Wetlands project, a component of the Comprehensive Everglades Restoration Plan (CERP). (**0025-1-1** [Kimball, Dan] [Lewis, Mark])

Comment: The CERP Biscayne Bay Coastal Wetlands preferred plan, Alternative 0, includes plans to rehydrate wetlands in the vicinity of the proposed Turkey Point power plant site and poses a conflict with the COL application proposal to extract up to 124 million gallons per day from Biscayne Bay. The restoration project objective is to re-establish both overland freshwater flow and subsurface flow, which is intended to improve ecosystem function by stabilizing seasonal salinity patterns. Therefore, it appears likely that the withdrawal of Biscayne Bay water for cooling water supply is incompatible with the restoration goals, since it will intercept a percentage of the freshwater intended for restoration. (**0025-2-14** [Kimball, Dan] [Lewis, Mark])

Comment: The SFWMD is currently reviewing a Site Certification Application (SCA) for this project, pursuant to the State of Florida's Power Plant and Electrical Transmission Line Siting Act (Sections 403.501-403.539, Florida Statutes). During the SCA review process, the SFWMD has identified a number of issues that have the potential to result in significant adverse regional water resource-related impacts, including potential impacts to specific CERP projects and related restoration initiatives. (**0032-1** [Golden, James])

Comment: The SFWMD recommends that the following issues be addressed in the Environmental Impact Statement: Reclaimed Water Pipeline - The potential for adverse impacts to the CERP Biscayne Bay Coastal Wetlands Project. (**0032-18** [Golden, James])

Comment: The SFWMD recommends that the following issues be addressed in the Environmental Impact Statement: Electrical Transmission Lines - The potential for adverse impacts to the construction schedule for the U.S. Army Corps of Engineers (USACE) Seepage Management Pilot Project, which is a component of the CERP Project. The work on the USACE project will take place within the western levees of the SFWMD's L-30 and L-31N Canals, which are located within the West Preferred Corridor. The SFWMD is a participating partner with the USACE in this project. Work is scheduled to begin soon and may still be ongoing when FPL commences construction of the proposed transmission lines. (**0032-20** [Golden, James])

Response: *The review team has been consulting with, and will continue to consult with, State and Federal agencies in preparing the EIS. The USACE is a cooperating agency on the development of the EIS and is a key agency in the implementation of the CERP. The cumulative impact of the proposed action when added to the impacts of other past, present, and reasonably foreseeable projects, including the CERP and proposed Turkey Point Units 6 and 7, will be considered in Chapter 7 of the EIS.*

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse impacts of operation of the Turkey Point FPL power station on Biscayne National Park, in the past, currently, and in the future, please provide them. To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse impacts of operation of the Turkey Point FPL power station on Everglades National Park, in the past, currently, and in the future, please provide them. To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse impacts of operation of the Turkey Point FPL power station on Comprehensive Everglades Restoration Plan (CERP) Projects and CERP related projects, in the past, currently, and in the future, please provide them. To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse impacts of operation of the Turkey Point FPL power station on the Everglades Mitigation Bank, in the past, currently, and in the future, please provide them. (**0022-1-13** [Reynolds, Laura])

Comment: Construction and operation of transmission lines, pads and access roads in either corridor within ENP is likely to adversely affect park operations such as fire management, exotic

vegetation management and law enforcement. 2. Specific adverse effects to fire management would include increased fire activity due to the inherent threat of uncontrolled ignitions from transmission lines, limited accessibility to areas to engage in fire suppression activities due to gates and security issues on FPL land, and an increase in staffing levels based on fire danger rating. Transmission lines in either corridor would limit the park's ability to use aircraft for fire suppression in the area, especially along the eastern boundary. (**0025-3-42** [Kimball, Dan] [Lewis, Mark])

Comment: Inappropriate use of park lands could become an issue. Construction of access roads would introduce new areas for unauthorized all terrain vehicle use, dumping and other unforeseen uses which would result in adverse impacts to park law enforcement operations and sensitive natural resources. (**0025-3-44** [Kimball, Dan] [Lewis, Mark])

Response: *The potential impacts of building and operating the proposed units on nearby parks, the CERP, and the Everglades Mitigation Bank will be discussed in Chapters 4 and 5 of the EIS, respectively. The cumulative impacts of the proposed action when added to the impacts of other past, present, and reasonably foreseeable actions including those identified in this comment will be presented in Chapter 7. The EIS will include citations for documents used in its preparation.*

Comment: In addition the proposed rock mining project, which is planned within the Biscayne Bay Coastal Wetlands footprint, violates Miami-Dade County's comprehensive development master plan and interferes with the planned restoration project and could worsen saltwater intrusion and chloride contamination in Biscayne aquifer which is, of course, South Florida's primary drinking water supply. (**0001-7-6** [MacLaren, Kaitlin])

Comment: No data provided to assess groundwater Impact as a result of the fill extraction and construction of the water management feature. (**0023-3-11** [LaFerrier, Marc])

Comment: No mitigation plan found for possible salt front advancement as a result of rock pit mining. Planned fill source lies approximately 4 miles to the northeast of MDWASD Newton Wellfield. (**0023-3-12** [LaFerrier, Marc])

Comment: The application does not contain sufficient water quality and geotechnical information needed in order to evaluate the proposed FPL fill source. Given that the salt front exists at the proposed rockmining site, FPL must provide data including modeling under normal and drought conditions. (**0023-3-15** [LaFerrier, Marc])

Comment: The application does not provide sufficient information to determine that the proposed excavation will not extend into groundwater containing 250 mg/L or greater chloride. (**0023-3-17** [LaFerrier, Marc])

Comment: Application does not provide the following data/information related to the FPL-filed CDMP amendment application for rock mining in Agriculturally designated land: 1. Plan and data for the design of the leave-behind water management project, including technologies to be used during and after excavation to ensure that the project's waters are isolated from any present or future salt intruded groundwater. (**0023-3-3** [LaFerrier, Marc])

Comment: Sufficient water quality data for the site not provided. (**0023-3-7** [LaFerrier, Marc])

Comment: No studies provided to assess project's impact to surrounding agricultural wells or public wellfields under worst case conditions. (**0023-3-8** [LaFerrier, Marc])

Comment: The COLA proposes the excavation of fill material for the construction of the Units 6&7 Plant from a nearby FPL owned site behind the Homestead Air Force Base (HAFB) and adjacent to Biscayne National Park, although the FPL fill-source is no longer part of the State of Florida SCA. FPL intends to excavate a large amount of rock fill (approximately 300 acres) to elevate the proposed reactor construction site from approximately 1 foot above mean sea level to 26.5 feet above mean sea level. These activities will result in a large man-made lake, as a by-product of rock mining operations. The presence of this new lake would conflict with CERP design features planned for the Biscayne Bay Coastal Wetlands project because the lake would inhibit groundwater flow to the southeast and possibly exacerbate salt water intrusion inland. (**0025-2-16** [Kimball, Dan] [Lewis, Mark])

Response: *Available information about the fill source will be provided in Chapter 3 of the EIS. The impacts of obtaining fill material will be presented in Chapter 4; and the cumulative impacts of the proposed action by FPL to build and operate proposed Turkey Point Units 6 and 7, along with other past, present, and reasonably foreseeable future actions by other agencies, will be presented in Chapter 7, including the impacts associated with the CERP.*

Comment: Location and design approval from the Homestead Air Reserve Base for the project's conformance with AICUZ recommendations regarding bird strikes and other potential navigational hazards has not been provided. (**0023-3-10** [LaFerrier, Marc])

Response: *This comment refers to the SCA submitted to the State of Florida by FPL, but it indicates an interest in FPL's proposed plant design. A description of the site layout, the reactor type, and the cooling-water systems will be described in Chapter 3 of the EIS.*

Comment: The applicant shall also address how road construction and operation would compromise the ability of the EEL Program and other agencies to appropriately manage public lands. (**0023-1-51** [LaFerrier, Marc])

Comment: Please provide amended maps showing EEL projects, along with a complete analysis of the effects of linear feature construction and operation on nearby EEL Projects. (**0023-3-21** [LaFerrier, Marc])

Comment: Environmentally Endangered Lands (EEL) owned and/or managed preserves exist along proposed corridors. Please provide an analysis of the potential impacts to EEL Preserves from any work related to the transmission lines, including but not limited to development of corridors, acquisition to corridors, acquisition of additional easements, etc. (**0023-3-28** [LaFerrier, Marc])

Comment: Maps in the site certification application fail to depict conservation lands held and/or managed by the Environmentally Endangered Lands (EEL) Program. For example, the maps depicting jurisdictions fail to include MDC EEL holdings. Direct, indirect and cumulative impacts

to these lands associated with any of the proposed work or changes in hydrology is not addressed and needs to be detailed. (**0023-3-45** [LaFerrier, Marc])

Comment: Permitted land use within EEL acquisition project areas must be compatible with the environment and objectives of the Comprehensive Everglades Restoration Plan (CERP) and shall not adversely affect the long-term viability, form or function of these ecosystems. Any land use or site alteration should be carefully evaluated on a case by case basis by federal, state, regional and county agencies for conformity with all prevailing environmental regulations and compatibility with the objectives of CERP. Land Use Element LU-3B states that all significant natural resources and systems shall be protected from incompatible land use. Conservation Objective CON-4 and Policy CON-4A of the CDMP recognize the importance of these wetlands for their aquifer recharge and storage capacity and states these values shall be maintained, enhanced or restored. Objective CON-7 and related policies state that Miami-Dade County shall protect and preserve the biologic and hydrologic functions of the Future Wetlands identified in the Land Use Element. (The Future Wetlands includes all of the South Dade Wetlands area). Some of the proposed features are within Environmental Protection Sub Areas E and F of the CDMP which both require that the approval of any use and access roads or easements should be conditioned on demonstrated consistency of that use with the adopted goals, objective and policies of the CDMP and conformity with all prevailing environmental regulations. (**0023-3-46** [LaFerrier, Marc])

Response: *These comments refer to the SCA submitted to the State of Florida by FPL but they indicate an interest in how activities associated with building and operating proposed Turkey Point Units 6 and 7 would affect efforts being taken under the Environmentally Endangered Lands (EEL) Program. The EIS will address the cumulative impacts from the combination of the proposed action and past, present, and reasonably foreseeable actions, regardless of who takes the actions. The cumulative impacts associated with building and operating the proposed units will be evaluated for each affected resource.*

Comment: The SFWMD recommends that the following issues be addressed in the Environmental Impact Statement: Temporary Roadway Improvements for Construction of Units 6 & 7 - The potential for adverse impacts to the CERP Biscayne Bay Coastal Wetlands Project. (**0032-15** [Golden, James])

Response: *The EIS will address the cumulative impacts from the combination of the proposed action and past, present, and reasonably foreseeable actions, regardless of who takes the actions. The cumulative impacts associated with building and operating the proposed units will be evaluated for each affected resource.*

D.1.21 Comments Concerning Cumulative Impacts

Comment: In addition to the ongoing problems from the existing facility, the combination of losing wetlands and worsening saltwater intrusion could significantly impact the habitats, water quality, surface flow, projected restoration of water levels, and groundwater hydrology functions that are the object of the Everglades restoration. Construction of the plant itself, as well as the operation of the facility, will have adverse impacts on water quality, ecology, and aesthetics of

the Biscayne National Park. It will negatively impact the areas' protected species, wetlands, and much-needed fresh groundwater input into Biscayne Bay. (**0001-2-3** [Harris, Walter])

Comment: A final comment is that the -- the current -- the existing, in Units 4 and 5, as the previous speaker mentioned, are impacting our groundwater supply. And it is suspected that they are contributing to saltwater intrusion. And so we would like you to consider the cumulative effects of existing plants and then consider what additional impact a new plant will have. (**0001-7-8** [MacLaren, Kaitlin])

Comment: One of the most important things that the NRC can do as a function of the environmental review of this application is to evaluate the cumulative environmental impacts from all of these plants. After all, the reactors are called 6 and 7, not 1 and 2. Just evaluating this application as if the proposed plants exist in a vacuum, as the State is doing through their permitting process, would be a disservice to the community and to our environment. The NRC needs to evaluate the impacts of the two new reactors. Direct impacts like wetland losses, dredge fill pads, permanent onsite nuclear waste storage and temporary 20-year roads through an Everglades Restoration Project, in the context of the impact already caused by the existing power plant complex. (**0002-1-2** [Sorenson, Katy])

Comment: The Draft EIS should discuss the cumulative impacts to the environment associated with FPL's past, present, and future expansion in the south Florida region. (**0014-14** [Mueller, Heinz])

Comment: FPL has reportedly received all of the necessary approvals from FDEP to proceed with the uprate project. Construction activities for this project will occur primarily during two scheduled outages per unit, with each outage lasting approximately 50 days. Construction activities for Unit 3 and 4 are anticipated to conclude in the fall of 2011 and 2012, respectively. After completion, the cooling water flow rate will remain unchanged, although the temperature rise across the condensers is anticipated to increase by 2.5F. FPL proposes that Units 6 and 7 will have their cooling water needs provided by cooling towers as opposed to the existing canal system. Make-up for the towers is to be provided by reclaimed water. The Draft EIS should assess the cumulative effects of the uprated Units 3 and 4 combined with construction of new Units 6 and 7. Also, any increased removal of water from area basins as a result of operations of the interceptor ditch pumps should be discussed. (**0014-7** [Mueller, Heinz])

Response: *Cumulative impacts result from the combined effects of the proposed action and past, present, and reasonably foreseeable actions, regardless of who takes the actions. The appropriate geographic area and time period for considering cumulative impacts depend on the resource being affected and will be determined for each resource as part of the review team's evaluation. The impacts of building and operating proposed Turkey Point Units 6 and 7 on Biscayne Bay and adjacent lands will be added to other known or reasonably foreseeable actions and stressors within the defined geographic area of interest, including known or planned upgrades of other units on the Turkey Point site, if appropriate. The results of the analysis of impacts of the proposed units operations on water quality, ecology, and aesthetics will be presented in Chapter 5 of the EIS. The results of cumulative impact analyses will be presented in Chapter 7.*

Comment: What we are now finding in our communities is that there are significant risks to those of us who still have residents on well water. We have 1,000 homeowners, just in the Village of Pinecrest, still on well water. And we risk, with those residents on well water, the specter of saltwater intrusion at any time and the balance of what may happen as a result of the continued impositions of construction and what the nuclear plants would do, likely due to the balance and the risk that that would place. That all of our homes that are still on well water may be contaminated through saltwater intrusion is a very serious issue that we -- none of us have the financial wherewithal, nor does our county, who is facing a $400 million deficit, nor does the State of Florida which is facing an additional -- I think it is 3 to $6 billion deficit in the coming year, have any resources to come in and help put the infrastructure in place for those homes that are on -- continue to be on well water. (**0001-21-3** [Lerner, Cindy])

Comment: Another suggestion would be that they take the cooling water from deep within the bottom of Biscayne Bay and Card Sound, what they call the boulder zone. No one has the foggiest notion what that would do to the surface water. Would it create a cone of water? And if it did, how would that affect the inshore current that existed for thousands of years? (**0001-6-5** [Miller, Lloyd])

Comment: Our first major concern has to do with water impact. FPL proposes to place radial collector wells 40 feet below Biscayne Bay Aquatic Preserve in the upper levels of the Biscayne aquifer. And this step -- we hope you will consider whether this step may be within the take zone of the Biscayne aquifer. (**0001-7-1** [MacLaren, Kaitlin])

Comment: The Turkey Point expansion would require either 90 million gallons a day of reclaimed water, 124 million gallons a day from radial wells, or a combination of both. This is a huge amount of water and, as I'm going to discuss later, there are other better uses for this water. (**0001-7-2** [MacLaren, Kaitlin])

Comment: At least 3 percent of the water to be used in the radial collector wells will come from the Biscayne aquifer. This will result in a reduction of more than 3 million gallons a day of groundwater flow needed to support the flora and fauna of Biscayne Bay. (**0001-7-4** [MacLaren, Kaitlin])

Comment: This proposed expansion is in direct conflict with Biscayne Bay Coastal Wetland Project, which is part of the Everglades restoration. The availability of reused water to meet both the projected needs of FPL to operate the new plant and the needs of Everglades restoration is questionable. There was water, reused water earmarked for Biscayne Bay Coastal Wetlands Project that could be used for this project. (**0001-7-9** [MacLaren, Kaitlin])

Comment: Some of the other speakers have already talked about water. Nuclear plants consume more water and withdraw more water than coal plants, natural gas plants, and certainly far more so than wind or solar as forms of energy. As other speakers have alluded to, we already have water shortage issues with drinking water. (**0002-16-1** [Shlackman, Mara])

Comment: And we have to consider the socioeconomic impacts of this. The Redlands and Homestead are still an area that have agricultural businesses. There's been an effort to cultivate agritourism with such things as the Schnebly Winery, the Fruit and Spice Park,

Paradise Farms. And if we have all of this water being withdrawn for the nuclear plant, these agricultural businesses will suffer that much more. (**0002-16-2** [Shlackman, Mara])

Comment: Miami-Dade County is on permanent water rationing; we are only permitted to water our lawns twice a week. In the winter, winter that can go down to zero. We do not flush our toilets after every use; if it's yellow, let in mellow, if it's brown, flush it down. 3,000,000 people in Miami-Dade County live like this and you are going to build a power plant here that uses 125,000,000 gallons of water per day????!!!!. (**0016-14** [White, Barry])

Comment: The drawdown of water will be a threat to our water supply, creating salt water intrusion, increased salinity, and challenge our continued existence on this endangered land not to mention the impact on the nearby national parks, their flora and fauna. (**0016-5** [White, Barry])

Comment: The proposed use of radial wells to draw water from 40 feet under Biscayne Bay is a major threat to the water supply of the area. There is lateral movement of water in the aquifer so that the water will be drawn from all of the surrounding area including the aquifer to the west, the source of the Florida Keys water. (**0016-6** [White, Barry])

Comment: We in Florida, where water is already scarce, and rationed many months of the year, cannot afford to give up the additional millions of gallons of water required for these new nuclear plants' operation. The existing plants at Turkey Point have already contaminated our groundwater, like nuclear plants have all over our country, and caused saltwater intrusion into our freshwater wetlands and drinking water sources. Please do not further risk our irreplaceable Florida water resources by allowing these new plants to be built. (**0021-4** [Wilansky, Laura])

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse impacts of utilizing water from Radial Wells to the Turkey Point FPL power station in the future, including any cost-benefit analyses please provide them. (**0022-1-9** [Reynolds, Laura])

Comment: The operation of the RCWs would result in hydrologic impacts, including ground... water, on Biscayne Bay due to geological disturbances, resulting in water volume and quality alterations... The cone of influence during the operation of the RCWs extends into Biscayne National Park boundaries. Therefore, a large portion of the nearly 124 million gallons of Biscayne Bay water will originate from within Biscayne National Park boundaries, which is a protected water body. (**0025-1-12** [Kimball, Dan] [Lewis, Mark])

Response: *The impact of consumptive water use on both the local and regional water resources associated with building and operating proposed Turkey Point Units 6 and 7 will be presented in Chapters 4 and 5 of the EIS. Both current and future conditions, including changes in water demands to serve the needs of the future population and changes in water supply, will be considered. Cumulative impacts will be addressed in Chapter 7; and system design alternatives, including cooling water system designs and alternative cooling water sources will be presented in Chapter 9.*

Comment: Turkey Point is situated between two national parks and over the water supply for the entire Florida Keys and much on southern Miami-Dade County; and salt water intrusion and

increased levels of water salinity from the operation of Turkey Point Reactors 3 & 4 are already major concerns in the area. (**0012-6** [Payne, Nkenga])

Comment: [T]he construction of the additional nuclear power plants, as well as the operation of the existing facilities, will have adverse impacts on water quality, ecology, farm lands, cause salt water intrusion, as well as adversely impact the habitat of protected species, wetlands and much needed fresh groundwater input to Biscayne Bay. (**0012-9** [Payne, Nkenga])

Response: *The impacts on water quality, including the effects of saltwater intrusion during building and operation of the proposed units will be discussed in Chapters 4 and 5 of the EIS. The impacts of the proposed actions on the local ecology and nearby farm land will also be addressed in Chapters 4 and 5. Saltwater intrusion resulting from the combined effects of the proposed action and past, present, and reasonably foreseeable actions will be addressed in Chapter 7.*

Comment: Ensure an analysis of the possible impacts of sea level rise on the proposed project with all of its associated facilities, consistent with the range of potential increases adopted by the Miami-Dade County Climate Change Advisory Task Force. FPL's assessment is based historical information on sea level rise in Miami-Dade County. Current discussions of sea level rise suggest that a much more significant rise could occur during the useful life of the proposed project, initially from 2020 to 2060, with a possible extension of 20 years, taking us out as far as 2080. (**0019-3** [Hamilton, Karen])

Comment: The impacts of sea level rise due to climate change should be addressed as they pertain to the operation and maintenance of the RCWs and the hydrologic modeling, which is being used to forecast the percentage of water derived from Biscayne Bay versus freshwater from the Biscayne Aquifer. The effects of climate change should also address major storm events and cooling canal functionality over the projected lifespan of Units 6&7. Peer reviewed and governmental references should be part of this analysis, including the [PCC Fourth Assessment Report: Climate Change 2007; the Miami-Dade Climate Change report; and the Army Corps of Engineers, engineering circular - sea level rise 1165-2-211.
(**0025-2-13** [Kimball, Dan] [Lewis, Mark])

Comment: The SFWMD recommends that the following issues be addressed in the Environmental Impact Statement: Hurricanes/Climate Change/Sea Level Rise - The potential for adverse impacts related to the siting and design of the proposed plant and associated facilities directly on the coast in an area subject to the direct effects of hurricane tidal surge, climate change, and sea level rise. (**0032-28** [Golden, James])

Comment: The sighting of the proposed Florida Power & Light (FPL) nuclear reactors 6 and 7 adjacent to FPL's existing power plants on the sight abutting Biscayne Bay approximately 25 miles south of the city of Miami, is ill conceived and short sighted. According to the latest United Nations Intergovernmental Panel on Climate Change (IPCC) estimates, a sea level rise between 18 and 59 cm (7.1 to 23.2 inches) can be expected before the turn of the century. Unfortunately the IPCC did not factor in global land ice melt into this equation. The new IPCC report, due to be released in 2014, will include land ice melt sea level rise forcings.
(**0034-1** [Kipnis, Daniel])

Comment: This scenario may not be the reality of the situation. Dr. Stefan Rahmstorf, a leading and respected authority on the subject notes that, “land ice (glacial melt) has, in fact, contributed 80 per cent of the observed sea level rise over the past five years”, and, “if two-thirds of glacier ice were lost, this would add 40 centimeters to the global sea level”, then, “The big ice sheets would then need to contribute only about 50 centimeters (19.7 inches) — corresponding to less than one per cent of their mass — to bring sea level rise up to 114 centimeters (44.9 inches)”. This does not include any thermal expansion of ocean water which the IPCC admits will increase due to rising global temperatures. The only debate among climate scientists is not if, but when these changes will occur. Additionally and closer to home, the Science Committee of the Miami Dade County Climate Change Advisory Task Force (CCATF), Co-chaired by Dr. Hal Wanless, Chairman of the University of Miami’s Geology Department and Dr. Stephen Leatherman, Director of the International Hurricane Center at Florida International University, have predicted that sea level rise will be between 91.4 cm and 152.4 cm (3 to 5 Feet) by the end of the century and possibly as early as 2070. (**0034-2** [Kipnis, Daniel])

Comment: It should be plain to see, especially when sighting a 23 billion dollar facility with a useful working life of up to 100 years, that the proposed site presents inherent risks that place not only the financial investment of FPL’s rate payers but also their safety in extreme jeopardy. A sea level rise of just one foot would inundate 17% of Miami Dade County’s land mass, most of which would be in south Dade, including the area around Turkey Point and the access road to the facility. A two foot rise covers 28% of Miami Dade County’s land mass. Turkey Point generating facility effectively becomes an island. The current cooling canals for the existing nuclear generating facility become unusable as they are breached by rising bay waters. (**0034-3** [Kipnis, Daniel])

Comment: At the full predicted 5 foot range of sea level rise, occurring sometime between 2070 and the turn of the century, only 54% of Miami Dade County remains high and dry. FPL’s proposed power lines running down the western side of the County’s Urban Development Boundary (UDB) are miles from dry land as that part of the Everglades is flooded with both fresh water, used to hold back the rising sea, and salt water which is fast encroaching. The coastal ridge is now divided by tidal channels into a series of independent islands displacing a million or more county residents. The effect of any hurricane storm surge will force an additional million or more residents to leave the county for higher ground as they have already had to do on the barrier islands of Miami Beach and Key Biscayne. Even as bad as this scenario seems, it will get worse. Sea levels are expected to continue to rise for centuries to come and if they reach historic levels of past melts, could exceed 20 meters (66.61 feet). This may happen faster than expected due to accelerated climate forcings as countries have not only failed to reduce greenhouse gas emissions, but actually have accelerated them. (**0034-4** [Kipnis, Daniel])

Comment: The bottom line, the Nuclear Regulatory Commission and the Army Corps of Engineers should withhold permitting for FPL’s proposed generating facilities 6 and 7 due to concerns that: (1) Predicted sea level rise would first, isolate the facility on an island, then (2) Cause the access road to be undermined and overrun by sea water causing it to become unstable and unusable, then (3) Overrun and alter the current cooling canals and possibly cause the proposed cooling-water radial wells to function differently than now proposed and possibly cease to function as planned, then (4) Increase the effects of storm surges from

hurricanes and other tropical events on the facilities and access roads, then (5) Place maintenance constraints on power transmission lines that now will be water bound, then (6) Unfairly burden rate payers in funding a project that will not reach its projected life span, then (7) Have an insufficient client base to support the facilities operations when much of south Florida's population is forced to relocate due to sea level rise, tidal surge events, pollution concerns, altered wet and dry seasons, increased chance of tropical diseases and all the other predicted effects of climate change. (**0034-5** [Kipnis, Daniel])

Response: *The impact of sea level rise on the safe operation of the proposed units is considered in the NRC's safety review and is not within the scope of environmental review. Results of the safety review can be found in the Safety Evaluation Report (SER). However, sea level rise will be considered as one of the contributing factors to the cumulative impact of the proposed action and other past, present, and reasonably foreseeable actions in Chapter 7 of the EIS.*

Comment: The application proposed the discharges of potentially contaminated industrial waste from the maintenance of boiler, equipment closed cooling water system maintenance, and other areas to cooling canals. Although the use of oil-water separators is mentioned, no information was provided to allow for evaluation of potential impacts to sensitive ecological receptors, and surface and groundwater quality. No information was provided to show that no contamination will result from such discharges. (**0023-1-10** [LaFerrier, Marc])

Response: *This comment refers to the SCA submitted to the State of Florida by FPL, but it indicates an interest in the potential impacts of the proposed plant on Federally and State-listed endangered or threatened species and surface water and groundwater quality. The potential impacts of building and operating proposed Turkey Point Units 6 and 7 on Federally and State-listed endangered or threatened species and surface water and groundwater quality will be discussed in Chapters 4 and 5 of the EIS, based on the affected environment described in Chapter 2. The cumulative impacts of the proposed action and other past, present, and reasonably foreseeable future actions will be assessed in Chapter 7.*

Comment: The Summary of Measures and Controls to limit Adverse Impacts during Construction (Table 4.6-1, COL, Environmental Report, Part 3, Ch. 4) assesses the cumulative impacts to land use, hydrology, water use, subsurface flow, ecology, and socioeconomics, as a result of the construction of the entire Unit 6&7 plant (pre and post construction). FPL lists most impacts as small in this analysis, compared to moderate or large. Small is defined by FPL as Environmental effects are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute or resource. A striking aspect of this analysis is the incorporation of CERP features as either a contributable negative or positive impact to Units 6&7 construction. FPL appears to use benefits from the proposed Biscayne Bay Coastal Wetlands/CERP project to mitigate the environmental impacts of the Units 6&7 construction. This appears highly inappropriate in the determination of total impacts from the FPL project. Therefore, the NPS requests that this analysis be carefully evaluated to consider the impacts Unit 6&7 combined construction will have on Biscayne Bay Coastal Wetlands/CERP implementation, as well as, all other associated impacts to the environment.
(**0025-1-15** [Kimball, Dan] [Lewis, Mark])

Response: *Cumulative impacts result from the combined effects of the proposed action and past, present, and reasonably foreseeable actions, regardless of who takes the actions. The results of cumulative impact analyses will be presented in Chapter 7 of the EIS; and in that analysis the contribution of proposed Turkey Point Units 6 and 7 to the cumulative impact will be identified. In addition, the respective impacts of building and operating the proposed units will be presented in Chapters 4 and 5.*

Comment: Please state the amount of greenhouse gases units 6&7 will contribute to the atmosphere. Please state the amount of climate change units 6&7 will make to the environment. (**0022-2-17** [Reynolds, Laura])

Response: *The potential impacts of the airborne emissions from building and operating proposed Turkey Point Units 6 and 7 will be discussed in EIS Chapters 4 and 5, respectively. The potential cumulative impacts of the proposed nuclear power generation on climate change will be addressed in Chapter 7.*

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to adverse impacts of climate change as a result of direct heating of the atmosphere, please provide them. (**0022-4-17** [Reynolds, Laura])

Response: *The potential impacts of building and operating proposed Turkey Point Units 6 and 7 on climate change will be discussed in Chapters 4, 5, and 7 of the EIS, based on the affected environment described in Chapter 2. The EIS will include citations for documents used in its preparation.*

Comment: The proposed plant and associated facilities are located within project areas for the Comprehensive Everglades Restoration Plan (CERP), which proposes to restore regional wetland functions in the region, including functions that provide direct benefits to Miami-Dade County's population through protection of surface and groundwater resources. The EIS should examine the compatibility of the plant and associated facilities, including transmission lines, with CERP and CERP restoration goals for this area. (**0015-5** [Espinosa, Carlos])

Response: *The cumulative impacts associated with building and operating proposed Turkey Point Units 6 and 7 will be evaluated for each affected resource. Past, present, and reasonably foreseeable actions taken under the CERP will be considered in the cumulative impact analyses presented in Chapter 7 of the EIS.*

D.1.22 Comments Concerning the Need for Power

Comment: Like the previous speakers of the Greater Miami Chamber, the Mayor of the Florida City, Mr. Bill Diggs, efficient supply of power is essential to sustain economic growth and sustainability in South Florida. Business and industries is what we are predominantly, as an economic development council, concerned with. People that come to our community need to know that there is power provided by Florida Power & Light that is second to none, along with the infrastructure of roads, education, and other things that are climbing at an enormous rate in our community. Just the expansion of roads alone in the last two years is astronomical. Why?

Because there's a need. There's a lot of people coming into our communities. We need to keep up with that capacity, and that's what this is all about. As well, Barry Johnson, with the Greater Miami Chamber, talked about the fact that we've been accustomed to a quality of life, which is true. That quality dictates the need for additional infrastructure and utilities, power, all those things that we depend on in our daily lives. (**0001-25-2** [Horton, Richard])

Comment: The addition of the two new reactors to Turkey Point provide the energy which we will need in South Florida as our community continues to grow; 5, 6, 7 million people projected in the not too distant future. We've got to provide the kind of services that everyone expects and demands (**0001-5-2** [Johnson, Barry])

Comment: According to the Waxman-Markey Bill, we would probably need about 45 new nuclear reactors to meet the expectation, and I think 6 and 7 is the start of that. (**0001-9-3** [Martinelli, Tom])

Comment: I believe our electrical energy use is going to continue to grow in South Florida. I was walking the Hollywood Broadwalk this morning, and there were two large cranes I saw right at Sheridan Street and A1A. And what I found out they were doing is they were installing a new cellular tower on the top of the condominium building for wireless 4G/3G for the new smartphones. And we're more and more, as consumers, using electric. And to be competitive in this world we're not going to cut back on our electric use. However, there were some good points that were brought up, and it kind of ties into what I think is very important. (**0002-17-2** [Eney, Douglas])

Comment: If you look across the country, a lot of your nuclear power plants have reached the end of their life expectancy. Over the last, say, 10 years, America has been rebuilding, revamping them, making them capable of going on another 20, 30 years. You have a lot of coal fired power plants that have reached their life expectancy. As far as America as an industrial nation, we need this power to power our factories. Look at it. You go throughout the United States -- when you go to stores you don't see hardly anything made in America anymore. So if you look at it from an economic standpoint, if you see that these power plants have reached the end of their life expectancies, big industry is looking at this. (**0002-7-2** [Snelson, Richard])

Response: *These comments express agreement with the FPL application's assertion that the area needs additional power. The need-for-power analysis will be addressed in Chapter 8 of the EIS.*

Comment: FPL and Florida should be the leader in renewable and nuclear energy. So much that supply is greater than demand and we can sell it to other states. (**0006-5** [Weins, Brian])

Comment: Please state the "Need for Power" where units 6&7 is at the distant end of the electrical grid and is unable to send excess power to the east, the south, or the west. (**0022-3-6** [Reynolds, Laura])

Response: *The need-for-power evaluation will be presented in Chapter 8 of the EIS.*

Comment: If you Google FP&L, PSC -- Public Services Commission -- you'll find a lot of data, you'll find a lot of interesting articles. And I would direct you primarily to a writer for the Sun Sentinel in Fort Lauderdale called Julie Patel, for whom FP&L is her beat. And look at the long history of the relationship between PSC and FP&L. Why do I mention PSC at the beginning? Because they're the ones who did the needs analysis. Remember, this project starts with a needs analysis, where the PSC determined that there was a need for this power plant. Is there a need for this power plant? (**0002-14-1** [Schwartz, Matthew])

Response: *The need-for-power evaluation will be presented in Chapter 8 of the EIS. The determination of the need for power within a given area is not under the NRC's regulatory purview. However, for the purpose of its NEPA analysis, where another regulatory body has made a need-for-power determination, the NRC staff reviews the applicable regulators need-for-power analysis to determine if it is (1) systematic, (2) comprehensive, (3) subject to confirmation, and (4) responsive to forecasting uncertainty. If the need-for-power evaluation is found to be acceptable under these criteria, no additional independent review by the NRC is needed.*

Comment: Is the Florida population growing? Are we getting to the -- what was it, 15 million people we're going to have living in South Florida? Nowhere near there. In fact, population is not growing, it's static. There's a reason for that, there's a reason why the population isn't growing. But at any rate, this project does not take that into consideration. (**0002-14-2** [Schwartz, Matthew])

Comment: I'd first like to say that I know that we're saying there's a new need for energy. The last I've heard there's been a population decrease in this area. (**0002-8-1** [O'Katy, Jessica])

Comment: Please state the "Need for Power" in Florida in light of a population decrease of 58,294 from April 1, 2008 to April 1, 2009. (**0022-3-4** [Reynolds, Laura])

Response: *The need for power in light of population growth and electrical demand in the FPL service area will be analyzed and addressed in Chapter 8 of the EIS.*

Comment: The alternative analysis is based on an archaic assumption that base load power is needed. Last April, Federal Energy Regulatory Commission Chief Jon Wellington told the U.S. Energy Association that saying we need base load energy is like saying we need mainframe computers. The technology currently exists for distributed energy systems that negate the need for base load power. Further, the NRC must use updated information to reevaluate FPL's 2008 analysis for the new reactors in terms of the need for power given -- for the need for power, given the economic downturn and significant reduction in demand. (**0001-14-5** [Hancock, Mandy])

Comment: The electricity generated is not even needed in South Florida where the plants are proposed to be built, endangering all of us in this area for something we will neither use nor need. And the electricity these proposed plants could generate is not needed, period - this amount of energy and more could easily be saved by simply increasing conservation and efficiency, at a saving of billions of dollars to consumers, with NO risk to the environment whatsoever. (**0021-3** [Wilansky, Laura])

Response: *Decisions regarding which generation sources and alternatives to deploy are made by the applicant and regulatory bodies such as the public utility commission. The impacts of energy efficiency and demand-side management on the need for power and load forecasts will be addressed in Chapter 8 of the EIS. Alternative actions such as the no-action alternative, new generation alternatives, purchased electrical power, energy efficiency, alternative technologies (including renewable energy such as wind and solar), and the combination of alternatives will be considered in Chapter 9. The determination for the need for power is not under NRC's regulatory purview. However, for the purpose of its NEPA analysis, where another regulatory body has made a need-for-power determination, the NRC staff will review the applicable regulators need for power and determine if it is (1) systematic, (2) comprehensive, (3) subject to confirmation, and (4) responsive to forecasting uncertainty. If the need-for-power evaluation is found to be acceptable under these criteria, no additional independent NRC review is needed.*

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to the "50-year electrical demand projections for the FPL service area" considering various climate change and sea level rise scenarios, please provide them. (**0022-1-5** [Reynolds, Laura])

Comment: Please state the "Need for Power" in the light of sole source municipal wellfields being contaminated with salt water by a sea level rise of 1 foot or less. Please state the "Need for Power" in the light of large areas of infrastructure, residential and commercial real estate being flooded by a sea level rise of 1 foot or less. (**0022-3-5** [Reynolds, Laura])

Comment: To the extent that you are aware of any documents or reports by any federal, state, local or regional government agency, FPL or any of its employees or contractors that relate to the permanent closure of solid fueled electrical generating plants as a result of units 6 & 7 becoming operational, please provide. (**0022-4-24** [Reynolds, Laura])

Response: *The determination for the need for power within a given area is not under the NRC's regulatory purview. However, for the purpose of its NEPA analysis, where another regulatory body has made a need-for-power determination, the NRC staff reviews the applicable regulators need-for-power analysis to determine if it is (1) systematic, (2) comprehensive, (3) subject to confirmation, and (4) responsive to forecasting uncertainty. If the need-for-power evaluation is found to be acceptable under these criteria, no additional independent review by the NRC is needed. The need-for-power discussion will be included in Chapter 8 of the EIS. Chapter 8 will include a discussion of planned retirements of other generating facilities within the FPL service territory. The potential cumulative impacts associated with sea level rise will be discussed in Chapter 7.*

Comment: There is growing evidence that the thousands of acres of cooling canals designed for Turkey Point 3 and 4 are exacerbating saltwater intrusion in the area, and is believed to be impeding the flow of groundwater to Biscayne National Park. If no solutions to these impacts are addressed in this application review, then you will have contributed to the degradation of our national parks and our quality of life in Miami-Dade. (**0002-1-3** [Sorenson, Katy])

Response: *The purpose of the EIS is to disclose the environmental impacts of proposed Turkey Point Units 6 and 7. This comment addresses the impact of the existing power plants on*

the Turkey Point site which is outside the scope of the environmental review. The cumulative impact of the proposed action when added to the impact of past, present, and reasonably foreseeable future actions discussed in Chapter 7 of the EIS will consider the impact of the existing units on resources affected by the proposed units.

D.1.23 Comments Concerning Alternatives – Energy

Comment: It is not okay to build a nuclear power plant. If Germany can take and stop with all their nuclear power plants, planned by the year 2020 because they have found solar to be that efficient, and they get 50 percent less sunlight per year than we do, then certainly we can come up and do the same thing. (**0001-11-11** [Amor, Valerie])

Comment: This is the Sunshine State. We should be using sunshine as our source of energy. This is almost Neanderthal that we're still considering building more nuclear power as a way to solve our energy crisis. We have not gone beyond this point and it's very disappointing. There have been studies done by Broward County, a targeted industry study that said, solar is to be the next industry. (**0001-11-7** [Amor, Valerie])

Comment: There are more affordable ways for FPL to meet energy demand while protecting the environment and tackling global warming. As SACE and the NRDC testified to the PSC in 2009, simply increasing energy efficiency goals by 1 percent could save enough energy to estimate the need -- to eliminate the need for new reactors, while saving ratepayers money. Additionally, investing more resources in solar and clean bio-energy, instead of costly new reactors, would benefit FPL and offer economic development opportunities for Florida, without draining our water resources or pocketbooks. The NRC must evaluate updated information using a combination of these sustainable energy choices, including energy efficiency, before allowing FP&L to commit billions of dollars, billions of gallons of water, and nearly an entire decade to building these reactors when that time and money could be better spent on less risky options. (**0001-14-3** [Hancock, Mandy])

Comment: Energy efficiency measures preserve our water resources, save customers money, and also pose no health or safety risks to the public. Florida utilities have significant resources to tap in these areas as outlined in a recent extensive report, Energy Efficiency in the South, by Georgia Tech and Duke University, and our report, Yes We Can: Southern Solutions for a National Renewable Standard. Renewable energy technologies, such as solar and wind, do not require extreme manipulation of our precious water resources. The environmental report overlooks the potential for FPL to pursue a combination of wind and solar resources within its service territory and states there is no renewable technology alternative that could mitigate the need for nuclear power (**0001-14-4** [Hancock, Mandy])

Comment: It's imperative that the U.S. invest in a safe, sustainable energy paradigm for the 21st Century that can also help revitalize our economy and create vastly more jobs than Turkey Point could ever dream of. The nuclear industry claims that it is a necessary piece of that energy future. On the contrary, studies indicate that the energy mix will not require a nuclear component. In the ten years it takes to bring a new plant online, we could've been developing a new truly Green energy technologies. Because the nuke industry cannot compete on its own

without massive government subsidies, it threatens our bright Green future by drawing public investment away from it. (**0001-16-8** [Showen, Steve])

Comment: As Florida Power & Light staff was helping us build this house and advising us, my wife and I would say: Why are they helping you not pay them so much money? It doesn't quite make sense. So we asked them one time and the gentleman I asked said, Albert, you don't understand. If everyone built like this we would never need to build another nuclear power plant. (**0001-24-4** [Harum-Alvarez, Albert])

Comment: I know it isn't the Nuclear Regulatory Commission's place to determine need, but I do believe that there is a deep reservoir of available energy if we would only embrace energy efficiency. A recent report by Duke University and Georgia Tech concluded that the southern states could meet our future energy demand through aggressive energy conservation programs. There are a lot more jobs to be had putting people to work now, not 5, 10, or 15 years from now retrofitting homes and business throughout our community, and we don't have to pay for these jobs and reduced energy bills through an early cost recovery fee. (**0002-1-4** [Sorenson, Katy])

Comment: This project, from what I can see, it's about a $20 billion project. What's the problem with that? Because we are in an era where renewable, true renewable resources are now available to us; ocean power, solar, wind. Insolation is the measurement of how much sun reaches a given area of the earth. Florida is the Sunshine State for a reason. Look at insolation maps of the United States. South Florida is equivalent to parts of the Southwest; Arizona, New Mexico. We have the energy here, we are not using any of it. We are not making use of the solar. (**0002-14-3** [Schwartz, Matthew])

Comment: I think we keep looking at fossil fuel and I don't think we really understand how dependent we are on it and what a nasty thing it can be. And, yes, it would be wonderful and -- really wonderful. I don't think it's pie in the sky. I don't think that solar power is a magical thing. I think it's a coming thing, and I do think FP&L uses. I know they do. They use wind power. (**0002-15-4** [Finlan, Mary])

Comment: But solar installations on rooftops would create green jobs that would provide a viable alternative for the community. (**0002-16-4** [Shlackman, Mara])

Comment: Looking at reports that have been done in the name of efficiency, and we've heard a lot of about efficiency and renewables, there were a couple -- the Southern Alliance for Clean Energy and the Natural Resource Defense Council both testified to the Public Service Commission last year that simply increasing energy efficiency goals by 1 percent could negate the need for any nuclear power reactors. I think the NRC should really look at this option while they're doing the consideration of the scoping process. Obviously, renewables in conjunction with that would even further negate the need for new nuclear reactors. The NRC must evaluate updated information using a combination of this sustainable energy choices, including energy efficiency, before allowing FP&L to commit billions of dollars, billions of gallons of water, and nearly an entire decade to building these reactors when that time and money could be better spent on less risky options. (**0002-18-3** [Hancock, Mandy])

Comment: I, instead, would like to propose that we focus on truly renewable energy and clean energy answers as well as efficiency in Miami. (**0002-8-3** [O'Katy, Jessica])

Comment: So, I'd like to ask that we focus on truly clean and renewable energy sources like solar or wind, and most of all efficiency, and definitely take into consideration all of the environmental impacts that we can when making this decision. (**0002-8-9** [O'Katy, Jessica])

Comment: FPL should be exploring wind farms off the coast of Florida not oil drilling. Every new structure built should be required to use a minimum of 25% solar energy. (**0006-4** [Weins, Brian])

Comment: Opting to pursue energy resources that would not involve such irreversible damage to the surrounding environment is necessary to ensure the safety of the surrounding community. Renewable energy resources such as wind and solar power are a much wiser alternative for the State of Florida. (**0007-7** [Burris, Jessica])

Comment: Solar power is growing and Florida is known as the sunshine state. If we charged each homeowner for the installation and maintenance of the solar panels on their homes, then we could probably power the whole state. Also solar power does not emit green house gases or any other harmful side effects either. (**0009-2** [Hogsed, Daniel])

Comment: If we installed solar panels on every home in Florida we could generate more jobs than the nuclear power plant expansion would and inspire other countries to follow our lead. (**0009-4** [Hogsed, Daniel])

Comment: The City of South Miami supports energy policies based on investment in the rapid development of solar and wind energy, and all other proven renewable energy solutions, combined with a comprehensive program promoting energy efficiency and conservation. (**0012-18** [Payne, Nkenga])

Comment: South Miami supports energy policies based on investment in the rapid development of solar and wind energy, and all other proven renewable energy solutions, combined with a comprehensive program promoting energy efficiency and conservation. (**0012-2** [Payne, Nkenga])

Comment: The Draft EIS should discuss other alternative sources of energy that may available to serve the project purpose that would have less impact on sensitive wetland resources. (**0014-16** [Mueller, Heinz])

Comment: We can do better through major investments in energy efficiency, conservation, and renewables. No health risks involved if a solar panel breaks. (**0017-3** [Troner, Susannah])

Comment: I am fairly certain that FPL has done less than any other utility to try to curb electrical usage in our community through demand side management. They have no true incentive to do so. (**0017-5** [Troner, Susannah])

Comment: With so many truly clean, safe, renewable and sustainable technologies now available and in development, there is no reason to build new nuclear plants, which will only

drain much-needed resources from full development of better, safer technologies. Florida in particular has abundant solar energy that is not being used. (**0021-12** [Wilansky, Laura])

Comment: Please STOP THIS DISASTEROUS AND GREEDY EXPANSION OF ELECTRIC COMPANIES AND OTHER BIG BUSINESSES SET ON 21ST CENTURY ABUSE OF OUR PLANET. Our government must not turn its back - and should immediately go in the green direction - so that Americans, and especially our children, can look back with pride on the governmental leaders with this kind of foresight that protected the earth for future generations instead of allowing greed to continue its destructive pattern. (**0028-6** [DiNuzzo, Laura])

Comment: What about solar and wind power as safe alternatives? (**0031-6** [De Villiers, Elena])

Response: *The EIS will be prepared in accordance with 10 CFR 51.75(c). Alternative energy sources, including energy conservation and renewable energy sources, will be considered in Chapter 9 of the EIS.*

Comment: I could say the same thing that's been said for this nuclear power plant: I can bring you 4,000 new jobs and I can build a solar power plant. Would you all still be so happy? And I hope you would because if there is a problem with a solar plant, millions of people will not die; or the water will not be contaminated; the air will not be jeopardized; we would not worry about our aquifers. (**0001-11-8** [Amor, Valerie])

Comment: Now, aside from saddling the taxpayers with extraordinary risks, the nuclear power will crowd out dramatically energy-efficient competition from decentralized co-generation such as the 21 megawatt plant that provides the entire campus at Massachusetts Institute of Technology with electricity, heating, and cooling by extracting twice as much useful energy and using half as much fuel as a conventional power plant. (**0001-13-8** [Smilan, Stan])

Comment: In light of the recent Gulf oil spill, which upsets me very much, do you think it's a good idea of taking more risks with new technologies? I don't and that's why I'm here today. Why risk so much when there is other, better technologies such as solar? Energy efficiency and clean renewable energy should be our main focus right now. It will save money in the long term so that future generations have a chance. (**0001-19-4** [Ryan, Megan])

Response: *The evaluation of potential health impacts of operating additional nuclear plants on the Turkey Point site will presented in Chapter 5 of the EIS. In addition, the applicants safety assessment for the proposed licensing action was provided as part of the application. The NRC is in the process of developing an SER that analyzes all aspects of construction and operational safety. The NRC will only issue a license if it can conclude that there is reasonable assurance that (1) the activities authorized by the license can be conducted without endangering public health and safety, and (2) such activities will be conducted in compliance with the rules and regulations of the NRC. In addition, energy efficiency and renewable energy alternatives to the proposed action will be evaluated in Chapter 9 of the EIS.*

Comment: When comparing energy types -- when comparing types of energy generation, nuclear power has higher rates of both water withdrawal and consumption than coal and natural gas and far more than renewable energy sources, such as wind and solar. The 2010 report I

mentioned earlier by Georgia Tech and Duke University examined the energy efficiency in the South and it illustrated ways to substantially reduce energy needs, while simultaneously reducing water consumption. According to the report: In the North American Electric Reliability Council regions in the South, 8.6 billion gallons of freshwater could be conserved in 2020, which is 56 percent of the projected growth in cooling needs. And in 2030 this could grow to 20.1 billion gallons of conserved water, which is 45 percent of projected growth. Instead, we see FP&L projected figures for water demand in 2025 to include a 35 percent increase for public and commercial needs and a whopping 3,224 percent increase for thermoelectric power generation. The NRC needs to fully evaluate less water- intensive energy alternatives -- efficiency and renewables -- including using a combination of these energy sources. The NRC also needs to analyze the impacts such a drastic increase in water demand from the power sector could cause to this area. (**0001-14-7** [Hancock, Mandy])

Comment: As a mayor who has signed on the U.S. Conference of Mayors Climate Protection Agreement, I am committed to, as we all are -- we have major sustainable and clean energy initiatives that we are going forward with. But we don't see the cost benefit analysis that you are to do as one that could in any way sustain or support an additional nuclear power infrastructure being placed. We would love to see, as other speakers have said, additional solar manufacturing. We've got the land throughout South Florida to do the manufacturing of the solar panels, to see Florida Power & Light do what they've done in Arcadia, and put in more solar fields. But the adverse impact of the potential for bringing in additional nuclear power plants would interfere with residential, and commercial, and environmental interest to a significant degree. (**0001-21-5** [Lerner, Cindy])

Comment: Wouldn't any energy technology create jobs? Developing solar and wind energy systems would involve construction and permanent jobs. FP&L's job creation theme is an emotional ploy at best. Is enticement of jobs in trying economic times a good enough reason for expansion? We need direction from something much smarter and more thoughtful. That takes us to "greener" than coal fired plants. (**0029-2** [Guendelsberger, Debra])

Response: *Alternative energy sources, including coal, natural gas, energy conservation, and renewable-energy sources, will be considered in Chapter 9 of the EIS. The impact of consumptive water losses on the sustainability of both the local and regional water resources will be presented in Chapters 4, 5, and 7 for building and operation, respectively.*

Comment: I ask you to include the true costs of nuclear plants throughout their entire life cycle in your environmental calculations, including the diversion of resources from the desperately-needed development of truly safe and sustainable energy technologies.
(**0021-20** [Wilansky, Laura])

Response: *The assumptions of reactor life span and costs used in this analysis will be provided in Section 10 of the EIS. Costs for all phases of reactor building and maintenance will be discussed. The license period for a combined license is 40 years. A licensee can request renewal for an additional 20 years. The benefit-cost analysis is done for the license period of 40 years. It would not be appropriate to assume additional cost or benefit for an additional* 20 years *of license renewal when that action has not been requested or approved.*

Comment: As was said, we're referring to Units 6 and 7, because there are five operating units at the site. There are three fossil units and there's two nuclear units. So FPL has a well balance of fuel diversity but it's important that we increase, from a diversity standpoint, our reliance on nuclear energy and renewables. FPL currently is the largest generator of electricity from wind in the United States, and we have the largest solar power facility in the country. We're the third largest generator of electricity from nuclear in the United States currently today, without the addition of Units 6 and 7. (**0001-3-3** [Kiley, Mike])

Response: *This comment expresses support for the applicant's COL application. It does not provide specific information relating to the environmental effects of the proposed action and will not be evaluated in the EIS. It is listed to compile a complete record of comments received.*

Comment: [T]he estimated cost of thirty billion dollars or more which the public is expected to prepay, would be much better spent on creating and/or subsidizing an alternative energy industry. This industry will create many thousands of permanent jobs, as opposed to the relatively few which would be created by establishing new nuclear power plants. (**0012-15** [Payne, Nkenga])

Comment: The article [in the "Free Press"] mentioned that the nuclear plants rely almost 50% on natural gas - my question to you, Mayor, is why not go in the more "green" direction of "natural gas" for all future energy needs - which is abundant and cheap - I believe we are not even considering other alternatives because of the following: Big Business, FPL, and its well-trodden path of making the American people more and more electricity-, dependent (prices never going down or stabilizing to benefit the American people, even though FPL grows bigger and bigger every year) - and then - influencing our government by threatening loss of jobs = two ways coercing the American people/government into "feeding" this greedy monster AND IS NOT THE WAY TO GO IN THE 21ST CENTURY. (**0028-3** [DiNuzzo, Laura])

Comment: Regarding the coercing of the American people and our government by suggesting that thousands of jobs would be lost if the nuclear plants were not constructed, I propose the following green outlook: If, for instance, your office, Mayor, turned its back on FPL and our government refused to allow this typical example of Big Business 20th Century greed and inconsideration for the American people, and decided that America needs to be more self-sufficient and its individual homes more self-efficient - I can promise you with millions of homes proceeding in this Green Direction, thousands if no millions of jobs would be created by: Independent American-home generators, Independent American-home solar panels, Independent American-home, cistern-like water supplies. Thereby creating endless jobs in manufacturing, sales, installations, maintenances, repairs, and so many other job-related ramifications therewith - making Americans more dependent upon each other rather than big business and the world for our needs, and more importantly, moving in the right green direction to protect this planet from any further exploitation by big business. As far as fossil fuels are concerned: It is not the fossil fuels that have caused so many problems, it is Big Business Greed that has gotten out of control and must be stopped in the 21st Century. (**0028-4** [DiNuzzo, Laura])

Response: *The NRC does not establish public policy regarding electric power supply alternatives nor does it promote the use of nuclear power as a preferred energy alternative.*

Decisions regarding which generation sources and alternatives to generation to deploy are made by the applicant through least-cost planning and integrated resource plans. Additional regulatory purview is provided by bodies such as State energy planning agencies and commissions. However, the discussion of various alternatives to the proposed project is pertinent to the extent that an energy alternative must reasonably be expected to replace the base load energy supplied by the proposed project, whether individually or in combination. The alternatives must be technically viable, feasible, and competitive. Chapter 9 of the EIS will include the no-action alternative (energy efficiency and demand-side management), new generation alternatives, purchased electrical power, alternative energy technologies (including renewable energy such as wind and solar), and the combination of alternatives. For acceptable alternatives, the potential for environmental and economic impacts will be assessed against the proposed project. If one of the potentially viable alternatives is environmentally preferable to the proposed action, economic impacts will also be compared.

Comment: YOU HAVE THE OPTIONS OF DECIDING TO PUT TP 6&7 SOMEWHERE ELSE AND/OR TO SUGGEST THE USE OF ALTERNATIVE (AND DECENTRALIZED) ENERGY SOURCES AND PRODUCTION. FOR THE SAKE OF OUR GRANDCHILDREN, CHOOSE ONE OF THOSE OPTIONS. (**0016-12** [White, Barry])

Response: *The NRC staff carefully reviews each application it receives by using an acceptance review process to ensure all required components are provided by the applicant. Each application then receives additional scrutiny during the safety and environmental review processes. Examining alternative energy sources and alternative sites is a function of the environmental review process and these topics will be discussed in Chapter 9 of the EIS.*

D.1.24 Comments Concerning Alternatives – System Design

Comment: Application fails to provide an alternatives analysis for routing of the proposed reuse pipeline. Please provide an alternatives analysis that considers and compares the benefits and impacts of all feasible alternative routes for this pipeline, including but not limited to wetland impacts, impacts to state and federally protected species, impacts to existing water management features. Alternatives evaluated should include but not be limited to options that minimize wetland impacts. (**0023-1-25** [LaFerrier, Marc])

Comment: Application fails to provide an alternatives analysis for the proposed access road network, both for construction access to the plant and access to the transmission line corridors, and to adequately demonstrate that impacts to resources are minimized and avoided. Please provide an analysis of alternatives for the access roads that considers and compares the benefits and impacts of all feasible alternative routes for ingress-egress, and demonstrates minimization and avoidance of impacts including but not limited to wetlands, impacts to state and federally protected species, impacts to existing water management features, impacts to Environmentally Endangered Lands projects, Natural Forest Communities, and tree resources protected by Chapter 24, Miami-Dade Code. Alternatives evaluated for ingress-egress to Turkey Point should include but not be limited to utilization of the existing Palm Drive (SW 344 Street) corridor with and without shift change modifications, and alternative construction entrances including but not limited to utilizing the existing plant entrance with shift change modifications or making improvements to the L-31 East levee for use as a temporary

construction entrance by backfilling a section of the L-31 E borrow canal. (**0023-2-7** [LaFerrier, Marc])

Comment: Should the NPS decided to acquire FPL's property within ENP and not exchange lands, it is assumed that FPL would not abandon its objective to obtain a western route from Turkey Point to the Levee substation. FPL would, therefore, likely resume investigation of alternate route(s). These new route(s) could affect the local socioeconomic environment including people, property values, employment, and construction-related expenditures in Miami-Dade County. These impacts should be evaluated in the EIS. (**0025-3-47** [Kimball, Dan] [Lewis, Mark])

Response: *The potential impacts of building and operating proposed Turkey Point Units 6 and 7 and ancillary facilities and corridors on wetlands, Federally and State-listed species, and other terrestrially important resources will be discussed in Chapters 4 and 5 of the EIS, based on the affected environment described in Chapter 2. However, alternatives to the roads, pipelines, and transmission corridors proposed by FPL will not be considered in the NRC staffs analysis in the EIS because they are not alternatives to the proposed action (issuance of combined licenses) before the NRC. However, the Corps of Engineers, and perhaps the National Park Service, will be cooperating with the NRC on the EIS. To the extent that a cooperating agency addresses such alternatives for its NEPA analysis, those alternatives would likely be included in this EIS in order to support the cooperating agency's environmental review.*

Comment: Given the value of utilizing the treated reclaimed water as a part of the cooling process, it seems beneficial to store or reroute this by-passed water for beneficial use rather than disposal. Where possible, recycling/reuse efforts should be utilized to maximize the use of the reclaimed waters to supplement operations that have traditionally utilized other surface water or groundwater as sources for cooling and/or for environmental enhancement. (**0023-3-48** [LaFerrier, Marc])

Comment: Hence, underground injection is not a proven, reliable method of wastewater disposal in southern Miami-Dade County, most likely due to differences in regional geology. Therefore, FPL should investigate alternative methods of cooling water blowdown and wastewater disposal. What is FPL's contingency should FDEP not approve a Class I underground injection control permit for Units 6&7 operation? A feasibility analysis of treating wastewater for the benefit of the Biscayne Bay Coastal Wetlands/CERP project should be performed. (**0025-3-22** [Kimball, Dan] [Lewis, Mark])

Response: *A description of the site layout, the reactor type, and the cooling-water systems will be included in Chapter 3 of the EIS. Alternatives to the proposed method of disposal of wastewater will be presented in Chapter 9.*

Comment: [T]he foregoing discussion, the NPS recommends that the EIS identify and evaluate alternative Western Transmission Corridors outside the existing boundary of Everglades National Park and connecting wetland habitats. The National Environmental Policy Act mandates that reasonable alternatives to a proposed action be evaluated. Consistent with this requirement, the EIS should evaluate other corridors that could be considered as reasonable alternatives to the segments of the West Preferred and West Secondary Corridors that run

through Everglades National Park (and Water Conservation Area 3B). The NPS recommends this analysis focus on the zone between Krome Avenue and the Miami-Dade County Urban Development Boundary in order to identify potential corridors that would avoid and minimize adverse impacts to people, wildlife in the Everglades ecosystem, special status species and other natural and cultural resources. (**0025-2-12** [Kimball, Dan] [Lewis, Mark])

Response: *The potential impacts from building and operating transmission lines associated with proposed Turkey Point Units 6 and 7 will be addressed in the Chapters 4, 5, and 7 of the EIS. However, alternatives to the roads, pipelines, and transmission corridors proposed by FPL will not be considered in the NRC staffs analysis in the EIS because they are not alternatives to the proposed action (issuance of combined licenses) before the NRC. However, the Corps of Engineers, and perhaps the National Park Service, will be cooperating with the NRC on the EIS. To the extent that a cooperating agency addresses such alternatives for its NEPA analysis, those alternatives would likely be included in this EIS in order to support the cooperating agency's environmental review.*

Comment: What alternatives are being investigated to avoid use of radial collector wells, even as a backup system? In particular, we recommend that the applicant address the ability of the project to use reclaimed water technology either in part or in full. (**0018-14** [Poole, Mary Ann])

Comment: What contingency plans are considered for alternative water sources if fish and wildlife resources demonstrate negative responses to this technology? We would expect FPL to provide for a contingency plan in their Conditions-of-Certification, should monitoring indicate that this technology is counter-productive to the recovery of Biscayne Bay. (**0018-9** [Poole, Mary Ann])

Comment: Please provide a more detailed justification (including all supporting data and assumptions) in selecting the Biscayne Aquifer Radial Collector Well alternative instead of the Floridan Aquifer and offshore (marine surface) water alternatives as secondary. (**0023-1-49** [LaFerrier, Marc])

Response: *These comments are directed at the applicant and refer specifically to the SCA submitted to the State of Florida by FPL, but they indicate an interest in the cooling-water supply for proposed Turkey Point Units 6 and 7. The cooling-water source for the proposed units will be described in Chapter 3 of the EIS. Alternative water supplies will be considered in Chapter 9.*

D.1.25 Comments Concerning Alternatives – Sites

Comment: We are not opposed to nuclear energy but we don't support additional reactors next to the national parks that we're trying to restore and preserve. (**0001-15-1** [Cornick, Lance])

Comment: My next concern is the risk of building nuclear reactors so close to Miami and the Everglades. (**0001-19-3** [Ryan, Megan])

Comment: I understand there are alternate locations that are being looked at and considered. So I would implore the Regulatory Commission to come back with a recommendation that an alternate site that doesn't have the fragile environmental community that Turkey Point is faced with and all of the adverse impacts, take it somewhere else. (**0001-21-6** [Lerner, Cindy])

Comment: If they're sending this power north -- and somebody said we need this power here in Florida City. My God, we don't need two nuclear plants worth of power in Florida City. And if the power lines are going north, why don't they just leave them go up there and build a power plant up north instead of putting it down here? (**0001-6-9** [Miller, Lloyd])

Comment: Turkey Point is probably the most environmentally unlikely nuclear installation in the nation. If we had to do it all over again, would we really put a massive power plant complex on the border of a national park in the middle of sensitive wetlands and then convert thousands of acres of coastal mangroves into a giant radiator for two nuclear reactors? We may not have the chance to do it over, but we can certainly think better about making things worse. The environmental review of an expanding nuclear facility abutting a national park, in the middle of wetlands, that the Federal, State, and local governments have spent millions working to restore and protect, deserves extra scrutiny. (**0002-1-1** [Sorenson, Katy])

Comment: The EIS should include a comprehensive evaluation of the potential impacts of constructing and operating two nuclear power plants and related facilities at the four alternate sites located in Glades, Martin, Okeechobee and St. Lucie Counties. This analysis will enable the applicant, stakeholders, decisionmakers and the general public to identify the environmentally preferable alternative and if there is an obviously superior site for the construction and operation of the proposed facilities. (**0025-1-10** [Kimball, Dan] [Lewis, Mark])

Comment: A review of the Florida Power & Light Company Project Bluegrass Nuclear Power Plant Site Selection Study Report (summarized in COL Environmental Report, Section 9.3), leads the National Park Service (NPS) to question the adequacy of the site selection study. Please note that only excerpts from the site selection study report referenced above were included as pat1 of Section 9.3 of the COL Environmental Report. For instance, the Cooling Water Supply Criterion, PI, is based on an ocean intake water source (to avoid Biscayne Bay) approximately seven miles offshore as a back-up water supply source (Pages B-3, B-4, C- 93, and C-99). Therefore, it appears that the RCWs, proposed for use as a water source in the COL, may not have been evaluated as part of the site selection process. (**0025-1-6** [Kimball, Dan] [Lewis, Mark])

Comment: [T]he land use rating issued to Turkey Point was the highest (most favorable) among the eight site locations evaluated even though ecologically sensitive habitats were identified. The Report simply assumed that the Biscayne National Park would not be affected by the plant since land is owned by FPL and existing power plants/nuclear units are located there now (Page C-95). However, the RCW operation and use of the area for the CERP Biscayne Bay Coastal Wetlands project was not considered during that analysis. Furthermore, the Turkey Point location was issued the highest possible index score for possible risk of groundwater contamination, compared to the other locations evaluated (Page C-51). The Ecology/Federal RTE Species Criterion, P5, identified Turkey Point as having the highest number of threatened and endangered (T&E) species (Page B-19). The evaluation of disruption to important species was based on the Federally protected species list (22 aquatic and terrestrial species); this review did not consider State of Florida T&E species. If the NPS is to be a cooperating agency on the EIS, then impacts to state-listed and locally-listed species would need to be evaluated in this document as well (NPS Management Policies 2006 sec. 4.4.2.3). Moreover, the Wetlands Criterion, P6, did not include estuarine, marine, riverine,

or freshwater pond wetland acreage in the evaluation (page B-21), all of which are required to be considered due to the potential impacts associated with the RCW operation. (**0025-1-7** [Kimball, Dan] [Lewis, Mark])

Comment: Of particular concern is the fact that the Turkey Point location received an average score during the initial screening site selection evaluation (Page 16), yet that score was changed to the highest favorable score in the final general criteria evaluation (Page 23). The reason for the increase in favorability is unclear. It appears that the Turkey Point location was given additional weight based on non-quantified socioeconomic factors. (**0025-1-8** [Kimball, Dan] [Lewis, Mark])

Comment: [T]he NPS recommends that the site selection process be re-evaluated, reflect the actual proposed features of the COL application, and consist of a more detailed and accurate comprehensive analysis that accounts for the RCW operation, state and federal T &E listed species and their habitats, conflicts with CERP Biscayne Bay Coastal Wetlands projects, and a quantifiable socioeconomic analysis. It is important that these factors be carefully considered in the process because they could significantly affect the results. (**0025-1-9** [Kimball, Dan] [Lewis, Mark])

Comment: It's location and proximity to Everglades National Park, Biscayne National Park, John Pennekamp Coral Reef State Park, and the Florida Keys National Marine Sanctuary makes it an eyesore on the coastline and a drain on the environment, not to mention the potentially catastrophic damage that would occur if there should be a radioactive release. (**0027-2** [Moses, Dorothy])

Response: *The alternative site-selection process will be reviewed to determine whether it is systematic, employs reasonable selection criteria, and constitutes an acceptable number of reasonable sites for consideration. The alternative sites will be compared against the proposed site to determine whether any of the alternative sites are environmentally preferable to the proposed site. The process and results will be provided in Chapter 9 of the EIS.*

Comment: The Mayors from our surrounding cities gathered and together put forth information about their concerns on the environmental impact, not just the site of the reactors, but also the transmission lines. I'm here this evening just so I can add my voice to their concerns. (**0002-2-1** [Meerbott, Tim])

Response: *The impacts of building proposed Turkey Point Units 6 and 7 and transmission lines will be considered in Chapter 4 of the EIS, and the impacts of operating the units and transmission lines will be considered in Chapter 5.*

D.1.26 Comments Concerning Benefit-Cost Balance

Comment: The NRC should be aware that FPL's ratepayers aren't happy about the tens of millions they have already been forced to pay in advance given the pre-payment scheme in place to finance new reactors in Florida. And FP&L is asking again the troubled Florida Public Service Commission for tens of millions more with hearings set for the end of August. (**0001-14-2** [Hancock, Mandy])

Comment: The FP&L has garnered several hundred millions from its ratepayers at this early stage through the Florida's Early Cost Recovery Program awarded by the Public Service Commission. Under the program, FP&L could conceivably recoup the cost of -- the entire cost of the plant, estimated to be between 14 and 30 billion, and may not actually be required to ever build that plant. (**0001-16-6** [Showen, Steve])

Comment: Determine how public investment costs will be equitably shared by all FPL rate holders, no matter what delivery system is ultimately constructed. (**0019-11** [Hamilton, Karen])

Comment: Outrageous monetary costs to rate payers. FPL is now collecting $18 billion from its 4.5 million customers to provide nuclear electricity for 750,000 homes. (**0031-4** [De Villiers, Elena])

Response: *The costs of power generation are passed on to customers. The NRC's responsibility is to regulate the nuclear industry to protect the public health and safety within existing policy. The NRC is not involved in establishing the rates paid by customers; therefore, these comments are outside the scope of the NRC's authority and will not be evaluated further.*

Comment: This should be our choice, the ratepayers. Me, my family, my neighbors, we have already seen an increase in our bills to start paying for these reactors. These risky projects have a history of going over budget and taking longer than promised. (**0001-19-5** [Ryan, Megan])

Comment: Are you aware that Wall Street will not finance nuclear power plants? TP will cost around $35,000,000,000. Divided by 4.4 million homes, that is $8,000 per home, and then FPL will own them and we will pay 10.5% annually on FPL's free asset until they are depreciated. No wonder they want to build them, on the public's money. It will more than triple their market cap. And before I will do that, I will put in solar and go off the grid and reduce my FPL bill to about $40 per month, and if enough people do that, who will pay for those carbuncles on the bay? Power companies have gone bankrupt. Or would Uncle Sam have to bail them out too? (**0016-7** [White, Barry])

Response: *Issues related to costs associated with previous projects are outside the scope of the proposed action and will not be addressed in the EIS. The estimated overall costs and environmental impacts of the proposed project will be addressed in Chapter 10 of the EIS. The benefit-cost balance for the project will rely on the best available estimate of project timing and duration, while noting possible uncertainties that may affect those estimates.*

Comment: In reality, nuclear energy is a dinosaur that would be extinct if left to market forces except for its resuscitation by huge infusions of public cash. Wall Street considers nuke power too risky to invest in and nuclear energy is the most expensive form of energy. It can't make it on its own. Hence, we see the political influence of the industry in the halls of government. (**0001-16-5** [Showen, Steve])

Comment: If nuclear energy was truly sustainable, cost-effective and truly a profitable business, the companies trying to build new nuclear plants would not have to keep going back to Congress for loan guarantees, liability insurance and tax breaks. The fact that this industry cannot obtain operating insurance by any means other than Congressional action is extremely

telling! Nuclear plants are uninsurable!!!! Does that sound like an environmentally safe, economically sound business to you?! It surely doesn't to me! (**0021-15** [Wilansky, Laura])

Response: *The NRC is not involved in establishing energy policy. Rather, it regulates the nuclear industry to protect the public health and safety and the environment within existing policy. Determining whether nuclear power should be subsidized is outside of the NRCs mission and authority and will not be addressed in the EIS.*

Comment: I ask you to include the true costs of nuclear plants throughout their entire life cycle in your environmental calculations, including the guaranteed damage to Florida's environment. (**0021-18** [Wilansky, Laura])

Response: *The benefit-cost balance for proposed Turkey Point Units 6 and 7 will rely on the best available estimate of project timing and duration, with uncertainties noted. The estimated overall costs and environmental impacts of the proposed project during both building and the 40-year operations period will be discussed in Chapter 10 of the EIS.*

Comment: I am disheartened to see that a new facility can cost 10's of billions of dollars to build but we have sat around for the past 30 years so we must do something. (**0004-2** [Singer, Craig])

Response: *The costs and benefits of building and operating proposed Turkey Point Units 6 and 7 will be addressed in Chapter 10 of the EIS.*

Comment: I would like to first address the issue of jobs. If, in fact, the 15 to $30 billion that Steve mentioned were manna from heaven that we would only get if we built these power plants, then I think it's worthwhile to consider, in isolation, the construction jobs and the 800 jobs that would be ongoing. If not -- and of course it's not manna from heaven -- we have to compare what 15 to $30 billion could do spent in other ways. So I suggest that it's very much in scope to consider a cost benefit analysis that compares other ways of spending that money. (**0001-24-1** [Harum-Alvarez, Albert])

Comment: And so I would like to propose that the NRC include a cost benefit analysis that compares this proposed expansion of Turkey Point to distributed generation because, of course, that would get around the whole issue of transmission lines completely, including distribution of small nukes; building efficiency, which would create the largest number of jobs across the region; and finally, a no-build option which I suggest should always be in your comparisons because, of course, if we got to keep the 15 to $30 billion ourselves, we would find some way to spend it or invest it, and that would have an economic impact as well. Could very well give us our own efficiency by having us work on our houses individually. (**0001-24-3** [Harum-Alvarez, Albert])

Response: *Job creation during the building and operation of proposed Turkey Point Units 6 and 7 will be discussed in the socioeconomic sections of Chapters 4 and 5 of the EIS. The benefit-cost balance for the project will rely on the best available estimate of project timing and duration, while noting possible uncertainties that may affect those estimates. The NRC benefit-cost analysis in Chapter 10 is confined to an analysis of the as-proposed facilities at the proposed location. Alternatives will be considered in Chapter 9.*

Comment: The new reactors are too costly and will require too much water. (**0017-1** [Troner, Susannah])

Response: *This comment expresses opposition to the cost of the project. An evaluation of the benefit-cost balance of building proposed Turkey Point Units 6 and 7 will be discussed in Chapter 10 of the EIS. Water usage will be discussed in the hydrology sections of Chapters 4 and 5.*

Comment: [CASE submitted an article titled, "Proposed Turkey Point Nuclear Reactor Units 6 & 7 -Financially Prudent?" by George Cavros, Esq. The article expressed concerns about the benefit/cost balance of building nuclear reactors.] (**0003-2-2** [White, Barry])

Comment: The applicant should consider both monetary and societal costs when making decisions about infrastructure location and technology. Special attention should be given to limiting environmental, health, economic and social impacts to the surrounding communities. (**0019-8** [Hamilton, Karen])

Response: *The benefit-cost balance will be discussed in Chapter 10 of the EIS and will include environmental, health, social, and monetary costs along with benefits.*

Comment: [T]he two additional nuclear power plants: will take ten to fifteen years to become operational, which will make them technologically obsolete before completion. (**0012-14** [Payne, Nkenga])

Response: *The long-term benefits associated with the cost of building proposed Turkey Point Units 6 and 7 will be presented in Chapter 10 of the EIS.*

Comment: Please state the life-cycle costs of the water management feature(s). (**0022-3-16** [Reynolds, Laura])

Response: *Hydrology will be discussed in Chapters 4 and 5 of the EIS. The costs and benefits of building and operating proposed Turkey Point Units 6 and 7 will be addressed in Chapter 10.*

Comment: Please state the costs and benefits of constructing and operating Class I UIC wells for units 6&7. Please state the costs and benefits of constructing and operating Class V UIC wells for units 6&7 (**0022-2-10** [Reynolds, Laura])

Response: *Class I injection wells are used to inject wastewater below the lowermost underground source of drinking water and have been proposed for disposal of cooling-system blowdown water by FPL. The proposed system will be presented in Chapter 3 of the EIS. Alternatives for wastewater disposal will be presented in Chapter 9. Benefit-cost analysis for the proposed units will be presented in Chapter 10.*

Comment: Everglades Restoration, Biscayne Bay Restoration, is about restoring that area for its economic value, for its environmental value, and that has to be considered. This is two National Parks. Two National Parks that could be impacted by this. Biscayne Bay, and for the transmission siting aspect of it, Everglades National Park. Again, not one, but two National Parks that we're spending billions of dollars to restore because of their economic value, and the

economic value of restoring them. So, again, that negative economic cost has to be considered in your analysis. (**0002-6-8** [Grosso, Richard])

Response: *Impacts on Biscayne National Park and Everglades National Park from building and operating proposed Turkey Point Units 6 and 7 will be discussed in Chapters 4, 5, and 7 of the EIS. The costs and benefits of the proposed project will be presented in Chapter 10.*

D.2 References

10 CFR Part 52. 2012. *Code of Federal Regulations*, Title 10, *Energy*, Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants." Washington, D.C. TN251.

36 CFR Part 800. 2012. *Code of Federal Regulations*, Title 36, *Parks, Forests, and Public Property*, Part 800, "Protection of Historic Properties." Washington, D.C. TN513.

75 FR 33851. June 15, 2010. "Florida Power & Light Company; Turkey Point, Units 6 and 7; Combined License Application, Notice of Intent To Prepare an Environmental Impact Statement and Conduct Scoping Process." *Federal Register*, Nuclear Regulatory Commission, Washington, D.C. TN511.

42 USC 4321 et seq. National Environmental Policy Act (NEPA) of 1969, as amended. TN661.

NRC (U.S. Nuclear Regulatory Commission). 2010. Staff Memorandum from T. Terry to R. Whited dated August 31, 2010, regarding "Summary of Public Meetings to Support the Review of the Turkey Point, Units 6 and 7, Combined License Application." Washington, D.C. Accession No. ML102170529. TN514.

NRC (U.S. Nuclear Regulatory Commission). 2010. Staff Memorandum from A.J. Kugler to R. Whited, dated December 1, 2010, regarding "Scoping Summary Report Related to the Environmental Scoping Process for the Turkey Point Units 6 and 7 Combined License Application." Washington, D.C. Accession No. ML103130610. TN515.

NRC (U.S. Nuclear Regulatory Commission). 2010. *Environmental Impact Statement Scoping Process Summary Report Turkey Point Units 6 and 7 Combined Licenses Miami-Dade County, Florida*. Rockville, Maryland. Accession No. ML103130612. TN516.

NRC (U.S. Nuclear Regulatory Commission). 2010. *Official Transcript of Proceedings for Turkey Point Site License Public Meeting: Afternoon Session*. Neal R. Gross and Co., Inc., Washington, D.C. Accession No. ML102150591. TN518.

NRC (U.S. Nuclear Regulatory Commission). 2010. *Official Transcript of Proceedings for Turkey Point Site License Public Meeting: Evening Session*. Neal R. Gross and Co., Inc., Washington, D.C. Accession No. ML102150597. TN519.

APPENDIX E

DRAFT ENVIRONMENTAL IMPACT STATEMENT COMMENTS AND RESPONSES

APPENDIX E

DRAFT ENVIRONMENTAL IMPACT STATEMENT COMMENTS AND RESPONSES

Note: Appendix E, Draft Environmental Impact Statement Comments and Responses can be found in Volume 4 of NUREG-2176, Environmental Impact Statement for Combined Licenses (COLs) for Turkey Point Nuclear Plant Units 6 and 7.

APPENDIX F

KEY CONSULTATION CORRESPONDENCE

APPENDIX F

KEY CONSULTATION CORRESPONDENCE

Table F-1 identifies correspondence received during the evaluation process for the combined construction permits and operating licenses (COLs) application for the siting of two new nuclear units, Turkey Point Nuclear Plant Units 6 and 7, in Miami-Dade County, Florida. The initial biological assessment for the U.S. Fish and Wildlife Service is provided in Appendix F-2; the initial biological assessment for the National Marine Fisheries Service is provided in Appendix F-3; the essential fish habitat assessment submitted to National Marine Fisheries Service is provided in Appendix F-4. Follow on correspondence with the agencies is listed in Table F-1. The correspondence documents can be found in the Agencywide Documents Access and Management System (ADAMS) electronic public reading room accessible at http://www.nrc.gov/readingrm/adams.html, using the accession numbers listed under Date of Document. If you encounter issues accessing ADAMS, call the U.S Nuclear Regulatory Commission at 1800-397-4209 or 301-415-4737, or send an e-mail to pdr.resource@nrc.gov.

Table F-1. Key Combined License Consultation Correspondence

Source	Recipient	Date of Letter
U.S. Nuclear Regulatory Commission (Ms. Laurel Bauer)	Advisory Council on Historic Preservation (Mr. Reid Nelson)	June 23, 2010 (ML101610537)
U.S. Nuclear Regulatory Commission (Ms. Laurel Bauer)	Muscogee (Creek) Nation (Ms. Joyce Bear)	June 24, 2010 (ML101690496)
U.S. Nuclear Regulatory Commission (Ms. Laurel Bauer)	Poarch Band of Creek Indians (Mr. Robert Thrower, Tribal Historic Preservation Officer)	June 24, 2010 (ML101690503)
U.S. Nuclear Regulatory Commission (Ms. Laurel Bauer)	Seminole Nation of Oklahoma (Ms. Natalie Deere, Tribal Historic Preservation Officer)	June 24, 2010 (ML101690497)
U.S. Nuclear Regulatory Commission (Ms. Laurel Bauer)	Seminole Tribe of Florida (Mr. W.S. Steele)	June 24, 2010 (ML101690499)
U.S. Nuclear Regulatory Commission (Ms. Laurel Bauer)	Florida Deputy State Historic Preservation Officer (Ms. Laura Kammerer)	June 29, 2010 (ML101690480)
U.S. Nuclear Regulatory Commission (Ms. Laurel Bauer)	Archaeological and Historical Conservancy, Inc. (Mr. Robert Carr)	July 1, 2010 (ML101690462)
U.S. Nuclear Regulatory Commission (Ms. Laurel Bauer)	City of Coral Gables, Historic Preservation Administrator (Ms. Simone Chin)	July 1, 2010 (ML101730494)
U.S. Nuclear Regulatory Commission (Ms. Laurel Bauer)	City of Homestead Community Redevelopment Agency (Mr. Dan Wick)	July 1, 2010 (ML101730511)
U.S. Nuclear Regulatory Commission (Ms. Laurel Bauer)	City of Miami Historic Preservation Officer (Ms. Ellen Uguccioni)	July 1, 2010 (ML101690472)

Table F-1. Key Combined License Consultation Correspondence

Source	Recipient	Date of Letter
U.S. Nuclear Regulatory Commission (Ms. Laurel Bauer)	City of South Miami (Mr. Sanford Youkilis)	July 1, 2010 (ML101730515)
U.S. Nuclear Regulatory Commission (Ms. Laurel Bauer)	Florida Office of Historic & Archaeological Resources (Ms. Kathleen Kauffman)	July 1, 2010 (ML101690468)
Advisory Council on Historic Preservation (Ms. Caroline Hall)	U.S. Nuclear Regulatory Commission (Ms. Laurel Bauer)	July 8, 2010 (ML101900325)
Florida Deputy State Historic Preservation Officer (Ms. Laura Kammerer)	U. S. Nuclear Regulatory Commission	July 28, 2010 (ML102220345)
Miami-Dade County Historic Preservation Chief (Ms. Kathleen Kauffman)	U. S. Nuclear Regulatory Commission	August 12, 2010 (ML102390102)
Seminole Tribe of Florida (Mr. Willard Steele)	U.S. Nuclear Regulatory Commission (Mr. Andrew Kugler)	September 14, 2010 (ML102660296)
U.S. Nuclear Regulatory Commission (Mr. Andrew Kugler)	U.S. Nuclear Regulatory Commission (Mr. Ryan Whited)	September 21, 2010 (ML101880786)
U.S. Nuclear Regulatory Commission (Mr. Andrew Kugler)	Seminole Tribe of Florida (Mr. W.S. Steele)	December 8, 2010 (ML103420623)
U.S. Nuclear Regulatory Commission (Ms. Jennifer Dixon-Herrity)	Advisory Council on Historic Preservation (Mr. Reid Nelson)	October 23, 2014 (ML14269A049)
U.S. Nuclear Regulatory Commission (Ms. Jennifer Dixon-Herrity)	Archaeological and Historical Conservancy, Inc. (Mr. Robert Carr)	October 23, 2014 (ML14269A067)
U.S. Nuclear Regulatory Commission (Ms. Jennifer Dixon-Herrity)	City of Coral Gables (Ms. Dona Spain)	October 23, 2014 (ML14283A127)
U.S. Nuclear Regulatory Commission (Ms. Jennifer Dixon-Herrity)	City of Homestead Community Redevelopment Agency (Mr. Rick Ammirato)	October 23, 2014 (ML14281A316)
U.S. Nuclear Regulatory Commission (Ms. Jennifer Dixon-Herrity)	City of Miami Preservation Officer (Ms. Megan Cross Schmitt)	October 23, 2014 (ML14283A175)
U.S. Nuclear Regulatory Commission (Ms. Jennifer Dixon-Herrity)	City of South Miami Planning Director (Mr. Christopher Brimo)	October 23, 2014 (ML14283A124)
U.S. Nuclear Regulatory Commission (Ms. Jennifer Dixon-Herrity)	Cultural and Historical Programs Compliance Review Supervisor (Dr. Tim Parsons)	October 23, 2014 (ML14296A592)
U.S. Nuclear Regulatory Commission (Ms. Jennifer Dixon-Herrity)	Florida Division of Historical Resources (Mr. Robert F. Bendus)	October 23, 2014 (ML14269A082)
U.S. Nuclear Regulatory Commission (Ms. Jennifer Dixon-Herrity)	Florida Office of Historic & Archaeological Resources (Ms. Kathleen Kauffman)	October 23, 2014 (ML14281A278)

Table F-1. Key Combined License Consultation Correspondence

Source	Recipient	Date of Letter
U.S. Nuclear Regulatory Commission (Ms. Jennifer Dixon-Herrity)	Muscogee (Creek) Nation Tribal Historic Preservation Officer (Mr. Emman Spain)	October 23, 2014 (ML14283A151)
U.S. Nuclear Regulatory Commission (Ms. Jennifer Dixon-Herrity)	Seminole Tribe of Florida Tribal Historic Preservation Officer (Dr. Paul Backhouse)	October 23, 2014 (ML14283A141)
U.S. Nuclear Regulatory Commission	Seminole Tribe of Florida Tribal Historic Preservation Office	June 23, 2015 (ML16266A254)
U.S. Nuclear Regulatory Commission	Miccosukee Tribe of Indians of Florida Tribal Historic Preservation Office	June 24, 2015 (ML16266A255)
Department of Army, Jacksonville District Corps of Engineers (Ms. Megan Clouser)	Seminole Tribe of Florida Tribal Historic Preservation Officer (Mr. Bradley M. Mueller)	October 5, 2015 (ML15289A368)
Department of Army, Jacksonville District Corps of Engineers (Ms. Ingrid Gilbert)	Miccosukee Tribe of Indians of Florida Tribal Historic Preservation Officer (Mr. Fred Dayhoff)	March 7, 2016 (ML16172A120)
Florida Power & Light (Mr. Matthew J. Raffenberg)	Department of Army, Jacksonville District Corps of Engineers (Ms. Megan Clouser)	March 31, 2016 (ML16095A127)
Department of Army, Jacksonville District Corps of Engineers (Mr. Jacob Hemingway)	Seminole Tribe of Florida Tribal Historic Preservation Officer (Mr. Bradley M. Mueller)	August 2, 2016 (ML16266A253)
U.S. Nuclear Regulatory Commission (Dr. Allen Fetter)	U.S. Fish and Wildlife Service (Mr. Larry Williams)	September 28, 2016 (ML16237A212, ML16237A213, ML16237A214)

Appendix F-2

The U.S. Nuclear Regulatory Commission (NRC) has not reproduced the “Biological Assessment for the U.S. Fish and Wildlife Service” in the paper reproduction of the Environmental Impact Statement for Combined Licenses (COLs) for Turkey Point Units 6 and 7. This document can be found in the Agencywide Documents Access and Management System (ADAMS) electronic public reading room accessible at http://www.nrc.gov/reading-rm/adams.html, using accession number ML15028A372. If you encounter issues accessing ADAMS, call the NRC at 1800-397-4209 or 301-415-4737, or send an e-mail to pdr.resource@nrc.gov.

Appendix F-3

The U.S. Nuclear Regulatory Commission (NRC) has not reproduced the "Biological Assessment for the National Marine Fisheries Service" in the paper reproduction of the Environmental Impact Statement for Combined Licenses (COLs) for Turkey Point Units 6 and 7. This document can be found in the Agencywide Documents Access and Management System (ADAMS) electronic public reading room accessible at http://www.nrc.gov/reading-rm/adams.html, using accession number ML15028A378. If you encounter issues accessing ADAMS, call the NRC at 1800-397-4209 or 301-415-4737, or send an e-mail to pdr.resource@nrc.gov.

Appendix F-4

The U.S. Nuclear Regulatory Commission (NRC) has not reproduced the "Comment Draft Essential Fish Habitat Assessment for the National Marine Fisheries Service" in the paper reproduction of the Environmental Impact Statement for Combined Licenses (COLs) for Turkey Point Units 6 and 7. This document can be found in the Agencywide Documents Access and Management System (ADAMS) electronic public reading room accessible at http://www.nrc.gov/reading-rm/adams.html, using accession number ML15028A395. If you encounter issues accessing ADAMS, call the NRC at 1800-397-4209 or 301-415-4737, or send an e-mail to pdr.resource@nrc.gov.

APPENDIX G

SUPPORTING DOCUMENTATION

APPENDIX G

SUPPORTING DOCUMENTATION

G.1 Supporting Socioeconomic Documentation

Workforce estimates reflect direct labor estimated by the applicant to be employed in preconstruction, construction, and operations of the Turkey Point Nuclear Power Plant (Turkey Point) Units 6 and 7. In Table G-1, months are numbered starting from the beginning of the construction phase, with negative numbers indicating preconstruction, and the peak workforce is expected to occur in month 42.

Table G-1. Estimated Workforce by Month During Preconstruction, Construction, and Operation of Proposed Turkey Point Units 6 and 7 (FPL 2014-TN4058)

	Number of Employees				
		Operations			
Month	Construction	Unit 6	Unit 7	Total	Total
Preconstruction Activities					
-39	40	-	-	-	40
-38	45				45
-37	55				55
-36	60	-	-	-	60
-35	70	-	-	-	70
-34	75	-	-	-	75
-33	90	-	-	-	90
-32	100	-	-	-	100
-31	110	-	-	-	110
-30	130	-	-	-	130
-29	150	-	-	-	150
-28	180	-	-	-	180
-27	230	-	-	-	230
-26	280	-	-	-	280
-25	320	-	-	-	320
-24	390	-	-	-	390
-23	465	-	-	-	465
-22	540	-	-	-	540
-21	575	-	-	-	575
-20	650	-	-	-	650
-19	740	-	-	-	740
-18	825	-	-	-	825
-17	900	-	-	-	900
-16	1,000	-	-	-	1,000
-15	1,020	-	-	-	1,020
-14	1,090	-	-	-	1,090

Table G-1. (contd)

	Number of Employees				
		Operations			
Month	Construction	Unit 6	Unit 7	Total	Total
-13	1,180	-	-	-	1,180
-12	1,200	-	-	-	1,200
-11	1,220	-	-	-	1,220
-10	1,240	-	-	-	1,240
-9	1,300	-	-	-	1,300
-8	1,320	-	-	-	1,320
-7	1,340	-	-	-	1,340
-6	1,350	-	-	-	1,350
-5	1,375	-	-	-	1,375
-4	1,400	-	-	-	1,400
-3	1,425	-	-	-	1,425
-2	1,450	-	-	-	1,450
-1	1,475	-	-	-	1,475
Unit 6 Construction Begins					
1	1,500	-	-	-	1,500
2	1,525	-	-	-	1,525
3	1,550	-	-	-	1,550
4	1,600	-	-	-	1,600
5	1,625	-	-	-	1,625
6	1,650	-	-	-	1,650
7	1,675	-	-	-	1,675
8	1,700	-	-	-	1,700
9	1,725	-	-	-	1,725
10	1,750	-	-	-	1,750
11	1,775	-	-	-	1,775
12	1,800	-	-	-	1,800
Unit 7 Construction Begins					
13	1,825	-	-	-	1,825
14	1,850	-	-	-	1,850
15	1,900	-	-	-	1,900
16	1,950	-	-	-	1,950
17	2,000	-	-	-	2,000
18	2,100	-	-	-	2,100
19	2,250	-	-	-	2,250
20	2,350	-	-	-	2,350
21	2,450	-	-	-	2,450
22	2,600	-	-	-	2,600
23	2,750	-	-	-	2,750
24	2,900	-	-	-	2,900
25	3,050	-	-	-	3,050
26	3,200	-	-	-	3,200
27	3,350	-	-	-	3,350
28	3,500	-	-	-	3,500
29	3,650	-	-	-	3,650
30	3,850	-	-	-	3,850

Table G-1. (contd)

	Number of Employees				
		Operations			
Month	Construction	Unit 6	Unit 7	Total	Total
31	3,950	-	-	-	3,950
32	3,950	-	-	-	3,950
33	3,950	-	-	-	3,950
34	3,950	-	-	-	3,950
35	3,950	-	-	-	3,950
36	3,950	-	-	-	3,950
37	3,950	-	-	-	3,950
38	3,950	-	-	-	3,950
39	3,950	-	-	-	3,950
40	3,950	-	-	-	3,950
41	3,950	16	-	16	3,966
42	3,950	33	-	33	3,983
43	3,925	49	-	49	3,974
44	3,900	66	-	66	3,966
45	3,870	82	-	82	3,952
46	3,850	99	-	99	3,949
47	3,825	115	-	115	3,940
48	3,800	132	-	132	3,932
49	3,775	148	-	148	3,923
50	3,750	164	-	164	3,914
51	3,725	181	-	181	3,906
52	3,700	197	-	197	3,897
53	3,675	214	16	230	3,905
54	3,650	230	33	263	3,913
55	3,625	247	49	296	3,921
56	3,600	263	66	329	3,929
57	3,575	280	82	362	3,937
58	3,550	296	99	395	3,945
59	3,525	313	115	428	3,953
60	3,500	329	132	461	3,961
61	3,450	345	148	493	3,943
62	3,400	362	164	526	3,926
63	3,300	378	181	559	3,859
64	3,200	395	197	592	3,792
65	3,100	403	214	617	3,717
66	3,000	403	230	633	3,633
67	2,900	403	247	650	3,550
68	2,800	403	263	666	3,466
69	2,700	403	280	683	3,383
70	2,600	403	296	699	3,299
71	2,500	403	313	716	3,216
72	2,400	403	329	732	3,132
73	2,300	403	345	748	3,048
74	2,200	403	362	765	2,965
75	2,100	403	378	781	2,881

Table G-1. (contd)

	Number of Employees				
		Operations			
Month	Construction	Unit 6	Unit 7	Total	Total
76	1,900	403	395	798	2,698
77	1,700	403	403	806	2,506
78	1,500	403	403	806	2,306
79	1,300	403	403	806	2,106
80	1,100	403	403	806	1,906
81	800	403	403	806	1,606
82	550	403	403	806	1,356
83	450	403	403	806	1,256
84	375	403	403	806	1,181

Source: (FPL 2014-TN4058)

G.2 Supporting Radiological Dose Assessment

The U.S. Nuclear Regulatory Commission (NRC) staff performed an independent dose assessment of the radiological impacts resulting from normal operation of the proposed nuclear Units 6 and 7 at the Florida Power & Light Company (FPL) Turkey Point site. The results of that assessment are presented in this section in comparison to the results of the FPL Environmental Report (ER) Section 5.9 (FPL 2014-TN4058). This section is divided into five sections: (1) dose estimates from the deep-well injection exposure scenario, (2) dose estimates to the public from gaseous effluents, (3) cumulative dose estimates, (4) dose estimates to construction workers from Units 3, 4, and 6 during construction of Unit 7, and (5) dose estimates to biota other than humans.

G.2.1 Dose Estimates from the Deep-Well Injection Exposure Scenario

Hydrologic alterations affecting the Boulder Zone of the Lower Floridan aquifer would result from the deep-well injection of blowdown water and other liquid waste streams from the proposed Turkey Point Units 6 and 7. The injected water would include effluent from the sanitary waste-treatment plant, wastewater-retention basin, and liquid radioactive-waste-treatment system. The Boulder Zone is isolated from the Upper Floridan aquifer which can be used as an underground source of drinking water (USDW). However, although a normal operation exposure pathway is not expected, because of the unique nature of the radioactive effluent discharge and in response to NRC requests for additional information (NRC 2013-TN3937), FPL evaluated three potential dose scenarios in Final Safety Analysis Report (FSAR) Section 11.2.3.5 (FPL 2015-TN4502) and ER Section 5.4.1.1 (FPL 2014-TN4058) based on potential groundwater flow pathways of the injected radioactive liquid effluent that could result in inadvertent radioactive exposure to the general public. Therefore, FPL included an analysis of the potential liquid effluent pathways for radiological impacts from this waste disposal method (FPL 2014-TN4058), which was reviewed by the NRC staff for this environmental impact statement. The NRC staff reviewed and evaluated FPL's deep-well injection of radioactive liquid effluent and determined that the applicant's analyses met the regulatory requirements for such releases. The detailed results of the NRC staff's review are provided in Chapter 11, Radiological Waste Management, of the Advanced Safety Evaluation Report (NRC 2016-TN4776).

This discussion is concerned with the dose estimates of the scenarios, not with the hydrology model of the injectate transport. The hydrology model is discussed in Section G.3.

The results of the evaluation are summarized in the following sections.

G.2.1.1 Scope

As discussed in Sections 5.9.2.1 and 5.9.3.3, three exposure scenarios were postulated. However, does analysis was not performed for one scenario, the Ocean Reef Club scenario (located approximately 7.7 mi south-southeast of the deep-well injection analysis centerpoint), because the injectate plume never reached that far. Therefore, the only scenarios for which dose analysis was performed were the so-called “child” and “driller” scenarios located at a private parcel of land (located approximately 2.2 mi north-northwest of the deep-well injection analysis centerpoint).

G.2.1.2 Resources Used

The NRC staff calculated the postulated liquid pathway doses from the so-called child and driller conceptual scenario using a personal computer (PC) version of the LADTAP II code—NRCDose, Version 2.3.20 (ORNL 2012-TN4556)—obtained through the Oak Ridge Radiation Safety Information Computational Center (RSICC).

G.2.1.3 Input Parameters

Table G-2G-2 provides a list of the major parameters used in calculating dose to certain members of the public from liquid effluent releases into the Boulder Zone for retained scenarios during normal operation. Appendix G, Section G.3.3, discusses the hydrology groundwater confirmatory calculations of the potential for upward migration of injectate from the Boulder Zone of the lower Floridan aquifer, which forms the technical basis for the radiological source term input parameters.

G.2.1.4 Comparison of Results

The results documented by FPL in its ER (FPL 2014-TN4058) and the FSAR (FPL 2015-TN4502) for doses from accessing groundwater with infiltration from the Boulder Zone are compared in Table G-3 with the results calculated by the NRC staff. The largest dose to a member of the public calculated for this scenario was from an inadvertent intrusion by a subsistence driller. The doses calculated by the NRC staff are uniformly two-thirds of the doses calculated by FPL.

Table G-2. Parameters Used in Calculating Dose for Retained Scenarios

Parameter	NRC Values		Comments
Intrusion well source term (Ci/yr)	H-3	2.76×10^{1}	Scenario-specific values based on FSAR Section 11.2.3.5 (FPL 2015-TN4502) and ER Section 5.4.1.1 (FPL 2014-TN4058).
	Sr-90	4.99×10^{-7}	
	Cs-134	6.86×10^{-6}	
	Cs-137	6.78×10^{-4}	

Table G-2G-2. (contd)

Parameter	NRC Values	Comments
Discharge flow rate (ft^3/s)	1.0	Scenario-specific values based on FSAR Section 11.2.3.5 (FPL 2015-TN4502) and ER Section 5.4.1.1 (FPL 2014-TN4058).
Source term multiplier	1	Source term already accounts for two units discharging into the deep-well injection
Site type	Fresh water	Discharge is to surface freshwater sources
Reconcentration model	Fully Mixed	Scenario-specific
Total 50-mi population	1	Scenario-specific to one individual.
Dilution factors for aquatic food and boating, shoreline and swimming, and drinking water	1	LADTAP II code default values (NRC 1977; Strenge et al. 1986)
Transit time (hr)	0 (all uses)	Scenario-specific values
Consumption and usage factors for adults, teens, children, and infants	Shoreline usage (hr/yr) 12 (adult) 67 (teen) 14 (child) 0 (infant) Water usage (L/yr) 730 (adult) 510 (teen) 510 (child) 330 (infant) Fish consumption (kg/yr) 21 (adult) 16 (teen) 6.9 (child) 0 (infant)	LADTAP II code default values (NRC 1977; Strenge et al. 1986).
Irrigation rate (L/m^2/month)	38.7	Scenario-specific values based on FSAR Section 11.2.3.5 (FPL 2015-TN4502) and ER Section 5.4.1.1 (FPL 2014-TN4058).
Fraction of animal feed and water not contaminated	1.0	Scenario-specific values based on FSAR Section 11.2.3.5 (FPL 2015-TN4502) and ER Section 5.4.1.1 (FPL 2014-TN4058).
Total production within 50 miles (kg/yr)	1000.0	Scenario-specific values based on FSAR Section 11.2.3.5 (FPL 2015-TN4502) and ER Section 5.4.1.1 (FPL 2014-TN4058).
Irrigated growing period (days)	60	Scenario-specific values based on FSAR Section 11.2.3.5 (FPL 2015-TN4502) and ER Section 5.4.1.1 (FPL 2014-TN4058).
Crop yield (kg/yr)	2.0	Scenario-specific values based on FSAR Section 11.2.3.5 (FPL 2015-TN4502) and ER Section 5.4.1.1 (FPL 2014-TN4058).

(a) Only radionuclides included in Regulatory Guide 1.109 are considered (NRC 1977).

Table G-3. Comparison of Doses to the Public from Intrusion Well Above Boulder Zone

Type of Dose	FPL ER or FSAR[(a)]	NRC Staff Calculation	Percent Difference
Total body (mrem/yr)	5.6 (child)	3.63 (adult)	35
Other organ (mrem/yr)	7.8 (child's liver)	5.15 (adult's liver)	34

(a) ER Table 5.4-3 (FPL 2014-TN4058) and FSAR Table 11.2-209 (FPL 2015-TN4502). For conservatism, FPL used the parameters of a child for the driller's dose based on the radiological liquid effluent releases from two AP1000 units.

G.2.2 Dose Estimates to the Public from Gaseous Effluents

The NRC staff used the dose-assessment approach specified in Regulatory Guide 1.109 (NRC 1977-TN90) and the GASPAR II computer code (Strenge et al. 1987-TN83) to estimate doses to the maximally exposed individual (MEI) from the gaseous effluent pathway and to the population within the 50 mi radius of the Turkey Point site from the gaseous effluent pathway as recommended by NUREG-1555 (NRC 2000-TN614) for proposed Units 6 and 7.

G.2.2.1 Scope

The NRC staff and FPL independently calculated the maximum gamma air dose, beta air dose, total body dose, maximum organ dose, thyroid dose, and skin dose to receptors located at the maximum exposure point for each pathway discussed in Section 5.9. The maximum atmospheric dispersion factor and the maximum ground deposition occur in the north direction. In ER Section 5.4, the MEI is assumed to be located at 2.69 mi N (FPL 2014-TN4058). Dose to the MEI was calculated for the following exposure pathways: plume immersion, direct shine from deposited radionuclides, inhalation, ingestion of local farm or garden vegetables, and ingestion of locally produced beef, chicken, and cow's milk.

The NRC staff reviewed the input parameters and values used by FPL for appropriateness, including references made to AP1000 pressurized water reactor Design Control Document (DCD) Revision 19 (Westinghouse 2011-TN261). When site-specific input parameters were not available, default values from Regulatory Guide 1.109 (NRC 1977-TN90) were used. The NRC staff verified that FPL used reasonable exposure pathways, DCD input parameters (including source term), and recommended RG 1.109 input parameter values, and used those pathways and parameters in its independent calculation using GASPARII as summarized below.

Joint frequency-distribution data of wind speed and wind direction by atmospheric-stability class for the Turkey Point site (FPL 2014-TN4058) were used as input to the XOQDOQ code (Sagendorf et al. 1982-TN280) to calculate long-term average atmospheric dispersion factor (χ/Q) and atmospheric deposition factor (D/Q) values for routine releases. Based on 2 years of meteorological data, the NRC staff's independent results are similar to those reported by FPL in ER Tables 2.7-16 through and 2.7-18 (FPL 2014-TN4058). The NRC staff calculated population doses for all types of releases (i.e., noble gases, iodines, particulates, tritium, and carbon-14) for the applicable exposure pathways (i.e., plume immersion, direct shine from deposited radionuclides, ingestion of meat, vegetables, and goat milk) using the GASPAR II code.

G.2.2.2 Resources Used

The NRC staff calculated doses to the public from gaseous effluents using a PC version of the XOQDOQ and GASPAR II codes—NRCDose Version 2.3.20 (ORNL 2012-TN4556)—obtained through the Oak Ridge RSICC.

G.2.2.3 Input Parameters

Table G-4G-4, Table G-5G-5, and Table G-6G-6 list the major parameters used in calculating dose to the public from gaseous effluent releases during normal operation. For population dose assessment, FPL used the population projection for the year 2090. These population projections are presented in ER Table 2.5-1 (FPL 2014-TN4058). However, Section 5.4.1 of the

NRC's Environmental Standard Review Plan (ESRP) (NRC 2000-TN614) recommends "projected population for 5 years from the time of the licensing action under consideration." Assuming the combined construction permit and operating license action occurs in year 2018, adding 5 years yields year 2023. Because the population is increasing, the year 2030 was selected as being more conservative than recommended by the ESRP and has been used herein. In addition, staff also applied the population doses in the year 2090, selected by FPL as the likely end of operation.

Table G-4. Gaseous Effluent Source Term

Parameter	Staff Value		Comments
New unit gaseous effluent source term (Ci/yr)	Ar-41	3.4×10^{1}	Values from Westinghouse AP1000 DCD Table 11.3-3 , Rev 19 (Westinghouse 2011-TN261).
	Kr-85m	3.6×10^{1}	
	Kr-85	4.1×10^{3}	
	Kr-87	1.5×10^{1}	
	Kr-88	4.6×10^{1}	
	Xe-131m	1.8×10^{3}	
	Xe-133m	8.7×10^{1}	
	Xe-133	4.6×10^{3}	
	Xe-135m	7.0×10^{0}	
	Xe-135	3.3×10^{2}	
	Xe-138	6.0×10^{0}	
	I-131	1.2×10^{-1}	
	I-133	4.0×10^{-1}	
	H-3	3.5×10^{2}	
	C-14	7.3×10^{0}	
	Cr-51	6.1×10^{-4}	
	Mn-54	4.3×10^{-4}	
	Co-57	8.2×10^{-6}	
	Co-58	2.3×10^{-2}	
	Co-60	8.7×10^{-3}	
	Fe-59	7.9×10^{-5}	
	Sr-89	3.0×10^{-3}	
	Sr-90	1.2×10^{-3}	
	Zr-95	1.0×10^{-3}	
	Nb-95	2.54×10^{-3}	
	Ru-103	8.0×10^{-5}	
	Ru-106	7.8×10^{-5}	
	Sb-125	6.1×10^{-5}	
	Cs-134	2.3×10^{-3}	
	Cs-136	8.5×10^{-5}	
	Cs-137	3.6×10^{-3}	
	Ba-140	4.2×10^{-4}	
	Ce-141	4.2×10^{-4}	

Table G-5. NRC Staff GASPAR Parameters and Selected Inputs

GASPAR Code Entry, Site Specifics	Input Value	Reference
Source Term: annual average gaseous release	Table G-3	Westinghouse AP1000 DCD Table 11.3-3, Rev 19 (Westinghouse 2011-TN261)
Source multiplication factor	1.0	
Distance from site to NE corner of the United States	1,800 mi	Estimate
50 mi milk production[(a)]	1.70×10^5 L/yr	Milk cows in the four counties within 50 mi represent approximately 0.0154 percent of the State total (USDA 2012-TN4523). The annual production of milk in the State (FDACS 2015-TN4526) was multiplied by 0.0154 percent to estimate the production within 50 mi as 1.70×10^5 L/yr.
50 mi meat production[(a)]	2.81×10^5 kg/yr	Cows and broilers sold in the four counties within 50 mi represent approximately 0.53 percent and 0.00012 percent, respectively, of the State totals (USDA 2012-TN4523). The annual productions of red meat (USDA 2013-TN4525) and broiler (FDACS 2015-TN4526) in the State were multiplied by these percentages and summed to estimate the total meat production within 50 mi as 2.81×10^5 kg/yr.
50 mi vegetable production[(a)]	2.52×10^8 kg/yr	The harvested vegetable land area in the four counties within 50 mi represents approximately 14.6 percent of the State total (USDA 2012-TN4523). The annual production of vegetables in the State (USDA 2014-TN4524) was multiplied by 14.6 percent to estimate the production within 50 mi as 2.52×10^8 kg/yr.
Fraction of leafy vegetables grown	1	This is the most conservative value.
Fraction of year milk cows on pasture	1	This is the most conservative value.
Fraction of maximum individual's vegetable intake from own garden	0.76	This is the default value in GASPAR II.
Fraction of milk-cow feed from pasture	1	This is the most conservative value.
Average absolute humidity for growing season	8 g/m^3	This is the default value in GASPAR II.
Fraction of year goats on the pasture	1	This is the most conservative value.
Fraction of goat feed from pasture	1	This is the most conservative value.
Fraction of year beef cattle at pasture	1	This is the most conservative value.
Fraction of beef cattle feed from pasture	1	This is the most conservative value.

(a) These values differ from the FPL ER input selections put into GASPAR II. This is discussed in detail in Section G.2.2.3.

Table G-6. Gaseous Effluent Exposure Pathway Receptor Locations

Nearest Receptor[(a)]	Direction	Distance (mi)
Site boundary	SSE	0.35
Residence	N	2.7
Vegetable garden	NW	4.8
Meat	N	2.7
Biota	SSE	0.25

(a) There are no milk animals within 5 mi of Turkey Point Units 6 and 7.

The NRC review guidance from the ESRP (NRC 2000-TN614) also states that present-day annual milk, meat, and vegetable consumption should be used. To model 2030 dose the NRC staff used the agricultural production estimates specified in Table G-5G-5. In its ER (FPL 2014-TN4058), FPL provided estimates for dose at the projected end of plant life—2090. FPL's estimates are derived from agricultural data from the years 2004 through 2008 (USDA 2004-TN1390; USDA 2007-TN1391; USDA 2008-TN1393). FPL's ER also projects food production to increase linearly with population growth, so production estimates were multiplied by 1.81. The NRC staff was able to replicate FPL's GASPAR II dose results using the assumptions stated in the ER, but the staff applied data based on current agricultural production statistics specified in Table G-5G-5. The staff used current production estimates to model dose in the year 2030 and multiplied these values by 1.81 to estimate production in 2090.

Population dose projections by FPL and the NRC staff differ due to differences in population and agricultural production assumptions.

G.2.2.4 Comparison of Doses to the Public from Gaseous Effluent Releases

Table G-7G-7, Table G-8G-8, and Table G-9G-9 present dose estimates to the MEI for each gaseous pathway as calculated by FPL and the NRC staff. Table G-7G-7 shows that the maximum doses from each unit occur at the Turkey Point site boundary and that most of the dose is derived from the external pathways. The maximum total body dose per unit is 3.9 mrem/yr to the adult and the teen, while the maximum organ doses per unit are 14 mrem/yr to the skin and 7.5 mrem/yr to the thyroid of the child based on conservative assumptions. In ER Table 5.4-5 (FPL 2014-TN4058), FPL provided comparable doses from the operation of Units 3 and 4 showing that the doses are less than 0.01 mrem/yr, based on the bounding values in 5 years of annual effluent reports, and thus are considered negligible. The doses provided by FPL in its ER and those calculated by the NRC staff were identical.

Table G-7. Gaseous Pathway Doses for Maximally Exposed Individuals for One Unit

Pathway	Dose (mrem/year) per Unit							
	Total Body	GI-Tract	Bone	Liver	Kidney	Thyroid	Lung	Skin
Site Boundary								
External								
Plume	2.6	2.6	2.6	2.6	2.6	2.6	2.7	13
Ground	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2
Total	3.6	3.6	3.6	3.6	3.6	3.6	3.8	14
Inhalation								
Adult	0.28	0.28	0.046	0.29	0.29	2.7	0.37	0
Teen	0.28	0.29	0.055	0.29	0.30	3.3	0.42	0
Child	0.25	0.25	0.067	0.26	0.27	3.9	0.36	0
Infant	0.15	0.14	0.034	0.16	0.16	3.5	0.22	0
Total								
Adult	3.9	3.9	3.6	3.9	3.9	6.3	4.1	14
Teen	3.9	3.9	3.7	3.9	3.9	6.9	4.2	14
Child	3.9	3.8	3.7	3.9	3.9	7.5	4.1	14
Infant	3.7	3.7	3.6	3.8	3.8	7.1	4.0	14
Residence								
External								
Plume	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0074	0.046
Ground	0.0066	0.0066	0.0066	0.0066	0.0066	0.0066	0.0066	0.0077
Total	0.013	0.013	0.013	0.013	0.013	0.013	0.014	0.053
Inhalation								
Adult	0.0012	0.0012	0.00016	0.0012	0.0012	0.0096	0.0015	0
Teen	0.0012	0.0012	0.00019	0.0012	0.0012	0.012	0.0016	0
Child	0.0010	0.0010	0.00023	0.0011	0.0011	0.014	0.0014	0
Infant	0.00059	0.00058	0.00012	0.00063	0.00063	0.012	0.00087	0
Vegetable								
Adult	0.0064	0.0065	0.033	0.0064	0.0061	0.086	0.0055	0
Teen	0.0092	0.0093	0.050	0.0096	0.0091	0.11	0.0083	0
Child	0.020	0.019	0.11	0.021	0.020	0.21	0.018	0
Meat								
Adult	0.0026	0.0036	0.011	0.0027	0.0026	0.0094	0.0025	0
Teen	0.0021	0.0027	0.0095	0.0022	0.0021	0.0070	0.0020	0
Child	0.0038	0.0040	0.018	0.0039	0.0038	0.011	0.0037	0
Total MEI Dose[(a)]								
Adult	0.023	0.025	0.058	0.023	0.023	0.12	0.023	0.053
Teen	0.026	0.026	0.073	0.026	0.026	0.14	0.026	0.053
Child	0.038	0.037	0.15	0.039	0.038	0.24	0.037	0.053
Infant	0.014	0.014	0.013	0.014	0.014	0.025	0.015	0.053

FPL Source: ER Table 5.4-7 (FPL 2014-TN4058)
(a) Total MEI dose per unit is the sum of the residence, vegetable, and meat pathways.

Table G-8. FPL and NRC Staff Results Annual Individual Doses to the Maximally Exposed Individual from Gaseous Effluents for One Unit

Pathway	Location	Age Group	FPL and NRC Staff Total Body Dose (mrem/yr)	FPL and NRC Staff Max Organ Dose (mrem/yr)	FPL and NRC Staff Skin Dose (mrem/yr)	FPL and NRC Staff Thyroid Dose (mrem/yr)
Plume	Residence	All	0.00671	0.00738 (lung)	0.0455	0.00671
Ground	Residence	All	0.00655	0.00655 (lung)	0.00770	0.00655
Inhalation	Residence	Adult	0.00115	0.00145 (lung)	0.0/0.00112[b]	0.00956
		Teen	0.00116	0.00163 (lung)	0.0/0.00113[b]	0.0119
		Child	0.00103	0.00142 (lung)	0.0/0.000994[b]	0.0137
		Infant	0.0592	0.000865 (lung)	0.0/0.000572[b]	0.0122
Vegetable	Vegetable	Adult	0.00638	0.0329 (bone)	0.0/0.00541[b]	0.0855
	garden	Teen	0.00916	0.0499 (bone)	0.0/0.00811[b]	0.108
		Child	0.0197	0.114 (bone)	0.0/0.0182[b]	0.206
Meat	Residence	Adult	0.00264	0.0114 (bone)	0.0/0.00247[b]	0.00938
		Teen	0.00211	0.00954 (bone)	0.0/0.00201[b]	0.00702
		Child	0.00377	0.0179 (bone)	0.0/0.00367[b]	0.0112
Total MEI Dose[a]		Adult	0.0234	0.0577 (bone)	0.0/0.0622[b]	0.118
		Teen	0.0257	0.0729 (bone)	0.0645	0.140
		Child	0.0378	0.145 (bone)	0.0761	0.244
		Infant	0.0139	0.0134 (bone)	0.0538	0.0255

FPL Source: ER Table 5.4-7 (FPL 2014-TN4058)
(a) Total MEI dose is a sum of the residence, vegetable, and meat pathways.
There are no milk cows/goats within 5 mi of the Turkey Point site.
Assumes the MEI's food comes from nearest meat and vegetable sources to the Turkey Point site.
(b) The first value is the FPL-calculated dose and the second value is the NRC staff-calculated dose.

Table G-9. Dose to the Nearest Resident (2.69 mi N) Assuming the Resident Began Producing and Consuming Milk, Meat, and Vegetables[a] for One Unit

Pathway	Age Group	FPL and NRC Staff Total Body Dose (mrem/yr)	FPL and NRC Staff Max Organ Dose[b] (mrem/yr)	FPL and NRC Staff Skin Dose (mrem/yr)	FPL and NRC Staff Thyroid Dose (mrem/yr)
Plume	All	0.0067	0.0074 (lung)	0.046	0.0067
Ground	All	0.006	0.006 (lung)	0.0077	0.0066
Inhalation	Adult	0.0012	0.00145 (lung)	0.0	0.0096
	Teen	0.0012	0.0016 (lung)	0.0	0.012
	Child	0.0010	0.0014 (lung)	0.0/0.04[c]	0.014
	Infant	0.00059	0.00087 (lung)	0.0	0.012
Vegetable	Adult	0.0064	0.033 (bone)	0.0	0.086
	Teen	0.0092	0.050 (bone)	0.0	0.11
	Child	0.00	0.114 (bone)	0.0	0.21

Table G-9G-9. (contd)

Pathway	Age Group	FPL and NRC Staff Total Body Dose (mrem/yr)	FPL and NRC Staff Max Organ Dose[(b)] (mrem/yr)	FPL and NRC Staff Skin Dose (mrem/yr)	FPL and NRC Staff Thyroid Dose (mrem/yr)
Meat	Adult	0.0026	0.011 (bone)	0.0	0.0094
	Teen	0.0021	0.0095 (bone)	0.0	0.0070
	Child	0.0038	0.018 (bone)	0.0	0.011
Milk	Adult	0.00438	0.0144 (bone)	0.00306	0.198
(cow)[(d)]	Teen	0.00680	0.0262 (bone)	0.00527	0.313
	Child	0.0140	0.0634 (bone)	0.0122	0.623
	Infant	0.0274	0.120 (bone)	0.0247	1.51
Milk	Adult	0.00705	0.0176 (bone)	0.00377	0.237
(goat) [(d)]	Teen	0.00966	0.0314 (bone)	0.00619	0.376
	Child	0.0171	0.0751 (bone)	0.0136	0.746
	Infant	0.0313	0.137 (bone)	0.0269	1.81

FPL Source: ER Table 5.4-7 (FPL 2014-TN4058)
(a) Hypothetical dose estimates to worst-case scenario if current parameters were to change.
(b) Maximum organ dose excludes skin and thyroid because they are subsequently listed.
(c) The first value is the FPL-calculated dose and the second value is the NRC staff-calculated dose.
(d) Doses for milk animal pathways are from FPL's GASPAR II output file (FPL 2010-TN4151).

G.2.2.5 Comparison of Liquid and Gaseous Doses with 10 CFR Part 50, Appendix I

Table G-10G-10 presents noble gas, radioiodine, and particulate matter dose estimates at the Turkey Point site boundary, as calculated by both FPL and the NRC staff, which are compared with dose design objectives from 10 CFR Part 50 (TN249), Appendix I. All gaseous doses were less than the 10 CFR Part 50 Appendix I design objectives.

Table G-10. Comparisons of the Dose Estimates from Liquid and Gaseous Effluents to 10 CFR Part 50, Appendix I Design Objective at the Turkey Point Site Boundary

Radionuclide Releases/Dose (from site boundary)	FPL and NRC Staff Calculations[(a)]	Appendix I Design Objectives
Gaseous Effluents		
Beta air dose	18 mrad	20 mrad
Gamma air dose	4.2 mrad	10 mrad
External whole body dose	3.6 mrem	5 mrem
Skin dose	14 mrem	15 mrem
Liquid Effluents		
Total body dose from all pathways	0 rem[(b)]	3 mrem
Critical organ dose from all pathways	0 rem[(b)]	10 mrem

(a) This is the dose for a single unit (i.e., either Unit 6 or Unit 7) from FPL 2014-TN4058.
(b) There are no exposure pathways for liquid effluents to reach a population under normal operating conditions as discussed above in Section G.2.1. Under the calculated theoretical release scenario, Appendix I criteria were met and are considered bounding.

G.2.2.6 Comparison of Population Dose from Liquid and Gaseous Exposures

Table G-11G-11 presents the population dose estimates to individuals living within the 50 mi radius of the Turkey Point site. FPL estimated the population dose based on an extrapolated

population estimate for the year 2090. The NRC staff evaluated the population dose based on the estimated population for the year 2030 and the year 2090.

The NRC population dose estimates as presented in Table G-11G-11 also presents person-rem dose estimates to individuals living within the 50 mi radius of the Turkey Point site, applying the assumptions specified by FPL in its ER (FPL 2014-TN4058) with updated agricultural production values as specified in Table G-5G-5. FPL's agricultural production estimates were based on U.S. Department of Agriculture data from 2004 through 2008 (USDA 2004-TN1390; USDA 2007-TN1391; USDA 2008-TN1393). FPL and staff production estimates were multiplied by 1.81 to reflect linear production increases to be in line with population increases out to the year 2090. As discussed in Section G.2.2.3, the NRC estimate of population total body dose estimates for vegetable, cow milk, and meat consumption for the year 2090 differs from the FPL estimate because the staff estimate is based on a greater amount of agricultural production.

Table G-11. Calculated Doses to the Population Within 50 mi of the Turkey Point Site from Gaseous and Liquid Pathways (Two AP1000 Units)

	Total Body Dose (person-rem/yr)		
Pathway	**FPL Estimate[(a)] for 2090**	**NRC Staff Estimate for 2090**	**NRC Staff Estimate for 2030**
Gaseous			
Plume	4.28	4.28	2.64
Ground	2.44	2.44	1.49
Inhalation	0.872	0.872	0.542
Vegetable	0.572	2.40	1.32
Cow Milk	2.78×10^{-4}	1.34×10^{-3}	5.98×10^{-4}
Meat	6.64×10^{-4}	2.80×10^{-3}	1.54×10^{-3}
Liquid Effluents	0	0	0

(a) Single AP1000 values from FPL 2016-TN4511 multiplied by 2.

Population doses resulting from natural background radiation to individuals living within the 50 mi radius of Turkey Point site are presented in Table G-12G-12. Table G-12G-12 shows that the calculated person-rem/yr exposure from Turkey Point Units 6 and 7 would be much less than the estimated person-rem/yr exposure from natural radiation.

Table G-12. Natural Background – Estimated Whole Body Dose to the Population Within 50 mi of the Turkey Point Site

Source	Annual Individual Dose (mrem/yr)	Annual population Dose (person-rem/yr)
FPL Estimates	300[(a)]	2.5×10^{6}[(a,c)]
NRC Staff Estimates	311[(b)]	1.3×10^{6} [(d)]

(a) Taken from FPL ER Table 5.4-10 (FPL 2014-TN4058) based on NCRP 1987-TN2258.
(b) NCRP 2009-TN420.
(c) 2090 population estimate from FPL ER Table 2.5-1 (FPL 2014-TN4058).
(d) Annual Population Dose based on projected residential population of 4,012,989 in the year 2030 from FPL ER Table 2.5-1) (FPL 2014-TN4058).

G.2.3 Cumulative Dose Estimates

Table G-13G-13 presents the comparison of doses for Turkey Point Units 6 and 7 with the dose standards of 40 CFR Part 190 (TN739). The table shows the NRC staff's assessment of total doses to the MEI from FPL liquid and gaseous effluents. The assessment shows that the 40 CFR Part 190 (TN739) standards would be met.

Table G-13. Cumulative Site Dose to MEI from FPL Units 6 and 7 Combined with Units 3 and 4

Type of Dose (mrem/yr)	FPL Units 3 and 4[(a)]	FPL Units 6 and 7 Liquid Dose (child)[(b)]	FPL Units 6 and 7 Gaseous Dose (child)[(c)]	Combined Maximum Individual Dose	40 CFR 190 Dose Standards
Total Body	0.0029	0	7.8	7.8	25
Thyroid	0.0059	0	15.0	15.0	75
Other Organ (Bone)	0.0059	0	8.4	8.4	25

(a) Bounding values from 5 years of effluent reports; theoretical values (thyroid, bone, and skin dose assumed to be the same).
(b) Under normal operating conditions expected to be zero.
(c) Values from table representing dose from both AP1000 units.

G.2.4 Dose Estimates During Construction

The NRC staff used the dose-assessment approach specified in Regulatory Guide 1.109 (NRC 1977-TN90) and the GASPAR II computer code (Strenge et al. 1987-TN83) to estimate doses to construction workers. Construction workers would be exposed to several potential sources of radiation. Workers would receive dose during the construction of Units 6 and 7 from the operation of Units 3 and 4. Unit 6 is planned to be operational 1 year prior to Unit 7. During that year, Unit 7 construction workers would be exposed to radiation from Units 3, 4, and 6.

Gaseous effluent and direct radiation were considered as possible routes of exposure. Liquid effluents were not considered a likely route of exposure because drinking water to Units 6 and 7 workers is to be supplied from the Miami-Dade Water and Sewer Department and liquid effluents from Units 3 and 4 are expected to be managed to ensure dose is negligible.

G.2.4.1 Scope

The NRC staff and FPL independently calculated the dose to construction workers working on Units 6 and 7 from Units 3 and 4, and dose to Unit 7 workers while Units 3, 4, and 6 are in operation. The NRC staff and FPL independently calculated the maximum gamma air dose, beta air dose, total body dose, maximum organ dose, and thyroid dose and skin dose to receptors located at the construction site. Dose to construction workers was calculated for the following exposure pathways: plume immersion, direct shine from deposited radionuclides, and inhalation.

The NRC staff reviewed the assumed exposure pathways and input parameters and values used by FPL in ER Section 4.5 (FPL 2014-TN4058) for appropriateness, including references made to AP1000 DCD Revision 19 (Westinghouse 2011-TN261). Default parameters from Regulatory Guide 1.109 (NRC 1977-TN90) were used when site-specific input values were not

available. As a result of this independent review, the NRC staff verified that the assumed exposure pathways by FPL were reasonable and that the Turkey Point Units 3 and 4 source term input parameters and RG1.109 values used by FPL were appropriate. NRC staff used these exposure pathways and input parameters in its independent calculation using GASPARII as summarized below.

Joint frequency-distribution data of wind speed and wind direction by atmospheric-stability class for the Turkey Point site (FPL 2014-TN4058) were used as input to the XOQDOQ code (Sagendorf et al. 1982-TN280) to calculate long-term average χ/Q and D/Q values for routine releases. Based on 2 years of meteorological data, the NRC staff's independent results are similar to those reported by FPL in ER Tables 2.7-16 through 2.7-18 (FPL 2014-TN4058).

G.2.4.2 Resources Used

The NRC calculated doses to the public from gaseous effluents using a PC version of the XOQDOQ and GASPAR II codes—NRC Dose Version 2.3.20 (ORNL 2012-TN4556)—obtained through the Oak Ridge RSICC.

G.2.4.3 Input Parameters

Table G-4G-4 and Table G-5G-5 list the major parameters used in calculating dose to the construction workers from gaseous effluent releases during normal operations at the site. Units 3 and 4 radiological releases are summarized in the annual reports entitled *Turkey Point, Units 3 and 4, Annual Radioactive Effluent Release Report* and *Turkey Point, Units 3 and 4, Annual Radiological Environmental Operating Report*. The limits for all radiological releases are specified in the Turkey Point Offsite Dose Calculation Manual (ODCM), and these limits are designed to meet Federal standards and requirements. The radiological environmental monitoring program (REMP) includes monitoring of the aquatic environment (fish, invertebrates, and shoreline sediment), atmospheric environment (airborne radioiodine, gross beta, and gamma), and terrestrial environment (vegetation) and direct radiation. The NRC staff reviewed these annual reports for calendar years 2002 through 2015 (the references for these reports can be found in Section 2.11). The maximum annual release was assumed to be 35 Ci (FPL 2014-TN4058). Unit 6 effluent releases were estimated for an AP1000 unit in DCD Table 11.3-3 (Westinghouse 2011-TN261). As discussed in DCD Section 12.4.2.1 (Westinghouse 2011-TN261), direct radiation exposure from Unit 6 is expected to be shielded such that the direct dose rate would be negligible.

The calculated annual dose rate, 0.013 mrem/yr, from a fully loaded independent spent fuel storage installation is negligible. To be conservative, the dose rate for the Unit 7 construction area from Units 3 and 4 is assumed to be 1 mrem. Construction workers were assumed to be at the construction site for 40 hours per week and 52 weeks per year. This constitutes an exposure time of 2,080 hours per year. Adjusted for 2,080-hour occupancy time per year, the direct radiation dose from Units 3 and 4 is not significant at 0.47 mrem/yr.

For dose calculation purposes, the average location of the Unit 7 worker was assumed to be at the center of Unit 7 reactor. Table 3.10-2 from the ER (FPL 2014-TN4058) estimates the maximum workforce for Unit 7 during any month to be 3,950 people. This size workforce is expected to last less than a year. To be conservative, the maximum size was assumed to last

the entire year for calculating the maximum annual workforce dose. Total effective dose equivalent (TEDE) was calculated by multiplying the thyroid dose by 0.03 and adding it to the total body dose.

G.2.4.4 Comparison of Doses to Construction Workers

Table G-14G-14 and Table G-15G-15 present dose estimates to the construction workers for each gaseous pathway as calculated by FPL and the NRC staff. Prior to Unit 6 operation, only gaseous effluents and direct radiation from Units 3 and 4 would be expected. Table G-16G-16 presents dose estimates to construction workers from direct exposure and effluent releases. The doses provided by FPL in its ER and those calculated by NRC are nearly identical.

Table G-14. Comparison of FPL and NRC Staff Estimated Dose Rates in Construction Area from Unit 6 Gaseous Effluents

	Construction Area Dose Rates (mrem/yr)					
	Total Body		Thyroid		Skin	
Pathway	FPL	Staff	FPL	Staff	FPL	Staff
Plume	12	12.0	12	12.0	60	60.3
Ground	8.7	8.74	8.7	8.74	10	10.3
Inhalation	1.3	1.32	13	12.5	1.3	1.28
Total	22	22.06	33	33.24	72	71.88

Table G-15. Comparison of FPL and NRC Staff Estimated Gaseous Effluent Doses to Unit 7 Construction Workers

	Annual Dose (mrem)							
	Total Body Dose		Thyroid Dose		Skin Dose		TEDE[c]	
Source	FPL	Staff	FPL	Staff	FPL	Staff	FPL	Staff
Units 3 and 4[a]	0.0022	0.0022	0.0022	0.0022	0.0031	0.0022	0.0023	0.0022
Unit 6[b]	5.2	5.24	7.9	7.89	17	17.07	5.5	5.47
Total	5.2	5.24	7.9	7.89	17	17.07	5.5	5.48

(a) Based on annual effluent reports from 2002 through 2015 (the references for these reports can be found in Section 2.11) and adjusted for 2,080 hr/yr occupancy.
(b) Adjusted from Table G-14G-14 values to account for 2,080 hr/yr occupancy.
(c) Calculated by multiplying the thyroid dose by 0.03 and adding it to the total body dose.

Table G-16. Estimated Total Dose to Unit 7 Construction Workers

	Annual Worker Dose (mrem)							
	Total Body Dose		Thyroid Dose		Skin Dose		TEDE	
Pathway	FPL	Staff	FPL	Staff	FPL	Staff	FPL	Staff
Direct Radiation[a]	0.47	0.47	0.47	0.47	0	0	0.47	0.47
Gaseous Effluents[b]	5.2	5.24	7.9	7.89	17	17.07	5.5	5.5
Total	5.7	5.71	8.4	8.36	17	17.07	6	5.95
	Annual Workforce Dose (person-rem)							
Total[c]	23	22.55	33	33.02	67	67.43	24	23.50

(a) Staff calculated values from Section G.2.4.
(b) Total gaseous effluent calculated in Table G-15G-15
(c) Calculated by multiplying the total annual worker dose by the maximum expected number of workers (i.e., 3,950 people).

G.2.4.5 Comparison of Construction Workers Dose Estimates to 10 CFR 20

Table G-17G-17 presents estimated construction worker dose as calculated by both FPL and the NRC staff along with the dose criteria for members of the public as stipulated in 10 CFR 20.1301 (TN283).

Table G-17. Comparison of Construction Worker Doses with 10 CFR 20.1301 Criteria for Members of the Public

Criteria	Worker	Limit
Annual Dose (TEDE mrem)	6	100
Unrestricted area dose rate (mrem/h)	0.0029	2

G.2.5 Dose Assessments to Biota Other Than Humans

To estimate doses to the biota from the liquid and gaseous effluent pathways, the NRC staff used the LADTAP II code (Strenge et al. 1986-TN82), the GASPAR II code (Strenge et al. 1987-TN83), and input parameters supplied by FPL in its ER (FPL 2014-TN4058).

G.2.5.1 Scope

The dose assessments discussed herein are for the operation of Turkey Point Units 6 and 7 and from the combined operation of Turkey Point Units 3, 4, 6, and 7 (i.e., cumulative site dose). Due to the deep-well injection of Units 6 and 7 radioactive liquid effluent, only gaseous effluent is considered from these units. When considering the cumulative site dose, the gaseous and liquid effluents from Units 3 and 4 are also considered.

Liquid effluent doses to both terrestrial and aquatic biota were calculated using the LADTAP II code. Aquatic biota include fish, algae, and invertebrate species. Terrestrial biota include muskrats, raccoons, herons, and ducks. The LADTAP II code calculates an internal dose component and an external dose component and sums them for a total body dose. Terrestrial biota could also be exposed via the gaseous effluent pathway. These values would be based on the MEI calculations using the GASPAR II code.

G.2.5.2 Resources Used

To calculate the doses to biota, the NRC staff used PC versions of the LADTAP II and GASPAR II computer codes—NRCDose, Version 2.3.20 (ORNL 2012-TN4556). These codes were obtained through the Oak Ridge RSICC.

G.2.5.3 Input Parameters

Gaseous effluents would contribute to the total body dose of the terrestrial surrogate species (i.e., muskrat, raccoon, heron, and duck). The exposure pathways include inhalation of airborne radionuclides, external exposure because of immersion in gaseous effluent plumes, and surface exposure from deposition of iodine and particulates from gaseous effluents. The dose calculated to the MEI from gaseous effluent releases in Section 5.9.3 would also be applicable to terrestrial surrogate species with two modifications. One modification defined in ER Section 5.4.4 (FPL 2014-TN4058) was increasing the ground-deposition factors by a factor of

two because terrestrial animals would be closer to the ground than a member of the public. The second modification was to use the biota location delineated in ER Table 5.4-6 (FPL 2014-TN4058). The gaseous effluent releases used in estimating dose are discussed in ER Section 3.5.2 (FPL 2014-TN4058).

In addition to the modifications applied by FPL for modeling biota, the NRC staff elected to make adjustments based on the diet of the organism. For example, because the muskrat is an herbivore, the meat ingestion pathway was omitted from the dose calculation for the species. In addition, the NRC staff chose to consider potential dose to the American crocodile, which is found in the canals surrounding the plant and is a Federally threatened species and on the Florida threatened species list. Because of the size of the American crocodile, a surrogate species model cannot be applied. The American crocodile can be up to approximately 2,006 lb (910 kg) and about 15 ft (4.6 m) long (National Geographic 2012-TN2577). Internal dose was adjusted to account for the size differential and a modification factor of 4 was applied to the ground-deposition factor. In captivity, an 11.5 ft (350 cm) crocodile eats 500 g per day (FAO 2012-TN2580). It was not possible to find the food consumption rate for a crocodile in the wild, but it is likely less for a wild crocodile that has to hunt for food. Since the American crocodile can be up to 15 ft long, a consumption rate of 3 times larger was assumed (1.5 kg/d) to be bounding. Therefore, in the calculations, the meat ingestion pathway was modified to assume 1,213 lb/yr (550 kg/yr), and assumed to be terrestrial rather than aquatic or riparian. Total body dose estimates to the surrogate species and the American crocodile from the gaseous pathway for either Unit 6 or Unit 7 are listed in Table G-18G-18.

Table G-18. NRC Staff Estimate of Non-Human Biota Doses for Proposed Turkey Point Units 6 and 7 for One Unit

	Doses from Gaseous Effluents	
Surrogate Species of Non-Human Biota	**Internal Dose (mrad/yr)[(a)]**	**External Dose (mrad/yr)[(a)]**
Saltwater Fish	0.0	0.0
Invertebrate	0.0	0.0
Algae	0.0	0.0
Muskrat	13.9	11.8
Raccoon	15.6	11.8
American Crocodile	155.7	19.0
Heron	2.2	11.8
Duck	15.6	11.8

(a) Radiological doses to non-human biota are expressed in units of absorbed dose (rad).

The NRC staff has done an estimate of the cumulative dose to biota from the proposed operation of Turkey Point Units 3, 4, 6, and 7. For the gaseous effluent doses, the gaseous effluent assumptions discussed above were still used. With respect to the American crocodile gaseous effluent dose, it was assumed that the crocodile spends 100 percent of the time on the shoreline. For the liquid effluent doses from Units 3 and 4, it was assumed that the American crocodile spends 50 percent of the time on the shoreline and 50 percent of the time swimming. There is no definitive information available on the makeup of the American crocodile's diet. It is

known that they will eat mammals that come to the shoreline (even deer) and that they also eat fish, snails, and crustaceans (Mazzotti 2003-TN1499), but not in what proportions. A study of American alligators (Fogarty and Albury 1967-TN2581) provided more definitive diet information; however, this was for alligators not crocodiles, which have different feeding habits. Based on the above information, the assumption was made, when modeling dose from the Units 3 and 4 liquid effluents, that 12 percent of the crocodile's diet is fish and the remaining 88 percent is invertebrates. These adjustments bound the potential effluent exposure to the American crocodile because they only consider food sources that were in the water (which would thus have a higher concentration of radionuclides) and that the majority of the diet was from invertebrates (whose bottom-feeding habits would further concentrate radionuclides). By using different assumptions for the American crocodile behavior and diet the with respect to the gaseous versus liquid effluents, the resulting cumulative dose estimates provide a conservative upper bound.

G.2.5.4 Comparison of Results

Operation of Turkey Point Units 6 and 7

Total body dose estimates to the surrogate species and the American crocodile from the gaseous pathway for one unit are shown in Table G-18G-18.

Cumulative Dose from Turkey Point Units 3, 4, 6, and 7

The results of the cumulative dose estimates are provided in Table G-19G-19. Based on these dose estimates, the NRC staff concludes that the cumulative radiological impact on biota would not be significant.

Table G-19. NRC Staff Estimate of the Cumulative Biota Doses from the Proposed Operation of Turkey Point Units 3, 4, 6, and 7 Compared to the IAEA/NRCP Guidelines for Biota Protection

	Liquid Effluent Dose (mrad/d)[(a)]				Gaseous Effluent Dose (mrad/d)[(a]				Total Dose from Gaseous and Liquid Effluent (mrad/d)[(a)]	IAEA/NCRP Guidelines for Protection of Biota Populations (mrad/d)[(a)(b)]
Biota	Unit 3	Unit 4	Units 6 & 7	Total	Unit 3	Unit 4	Units 6 & 7	Total		
Saltwater Fish	0.0337	0.0337	—	0.0674	—	—	—	—	0.0674	1,000
Invertebrate	0.0337	0.0337	—	0.0674	—	—	—	—	0.0674	1,000
Algae	0.00507	0.00507	—	0.0101	—	—	—	—	0.01517	1,000
Muskrat	0.00729	0.00729	—	0.01458	0.0302	0.0239	0.141	0.1951	0.20968	100
Raccoon	0.00323	0.00323	—	0.00646	0.0343	0.0275	0.150	0.2118	0.21826	100
American Crocodile	0.0322	0.0322	—	0.0644	0.365	0.319	0.957	1.641	1.7054	100
Heron	0.00948	0.00948	—	0.01896	0.00412	0.00368	0.0768	0.08460	0.10356	100
Duck	0.00808	0.00808	—	0.01616	0.0343	0.0275	0.150	0.2118	0.22796	100

Source: IAEA 1992-TN712; NCRP 1991-TN729

(a) Radiological doses to non-human biota are expressed in units of absorbed dose (rad).

(b) Guidelines in NCRP and IAEA reports expressed in Gy/d (1 mGy/d equals 100 mrad/d).

G.3 Supporting Hydrologic Documentation

G.3.1 Review of FPL's Aquifer Performance Test of the Biscayne Aquifer on the Turkey Point Peninsula

FPL performed and analyzed a relatively large-scale aquifer performance test (APT) to determine hydraulic properties of the Biscayne aquifer in the vicinity of the proposed radial collector wells (RCWs). The RCWs are proposed as a backup source of cooling water for proposed Units 6 and 7 and would be constructed horizontally between 25 and 40 ft beneath the bed of Biscayne Bay adjacent to the Turkey Point peninsula. Hydraulic property estimates for the Biscayne aquifer were needed to support modeling which was performed to estimate the potential effects of pumping the proposed RCWs on the aquifer and on the hydraulically connected Biscayne Bay. The design, performance, and analyses of the test are described in FPL 2009-TN1263.

FPL completed the pumped well (PW-1) on the Turkey Point peninsula as an open borehole from 22 to 46 ft below ground surface and with cemented casing above that depth. They also constructed a dual-zone monitoring well (MW-1) with two vertically isolated monitoring zones at depth intervals of 24 to 60 ft (WM1-DZ-PI) and 65 to 70 ft (WM1-DZ-Deep) below ground surface. Four additional observation wells (MW-2, MW-3, MW-4, and MW-5) were completed with open intervals in the production zone interval, as follows: the top of the open interval was at a depth of 22 ft in each of the four wells, and the bottom of the open interval was at depths varying between 41 and 46 ft. The production interval observation wells were at distances ranging from 80 to 2,700 ft away from the pumped well. However, FPL did not detect a measurable response at the most distant observation well, MW-5. The APT was performed by pumping at a rate of 7,100 gpm for 7 days. Measured observation-well data were corrected for influence of both ocean tides and earth tides.

G.3.1.1 Hantush-Jacob Solution

Response at the observation wells indicated an aquifer separated from a constant-head water source by a thin (low storage capacity) semi-confining layer that allows some water to leak through the semi-confining layer and recharge the pumped aquifer. This recharge caused water level drawdowns (s) measured by FPL in the observation wells to stabilize within 2 to 10 min from the start of the APT, depending on radial distance (r) from the production well (Figure G-1). The method used to evaluate the test results and determine aquifer parameters is dependent on the response of the water levels in the wells to pumping. FPL (2009-TN1263) appropriately determined that the drawdown response from APT in the observation wells indicates that the Hantush and Jacob (1955-TN4094) "leaky-aquifer" analysis method should be used to estimate the hydraulic properties transmissivity (T) and storativity (S) of the Biscayne aquifer. The leaky-aquifer analysis method relies on matching the observation-well drawdown data to type curves based on the dimensionless leaky-aquifer well function defined by:

$$W(u,r/B) = 4\pi Ts/Q$$

and plotted vs. $4Tt/r^2S$, where t is elapsed pumping time. Different leaky aquifer type-curves were created by plotting the well function using different values of the dimensionless parameter,

r/B (where u is fixed). B is defined as the square root of Tb′/K′, where b′ and K′ are the thickness and hydraulic conductivity, respectively, of the semi-confining layer separating the aquifer from the overlying water source. Q is defined as the pumping rate. Therefore, the shape of the generated type-curves vary depending on thickness and hydraulic conductivity of the semi-confining layer

The NRC staff found that precise analysis of the data was challenging because the period between the start of the pumping test and the start of the period of steady drawdown is very short, and is possibly affected by early-time variations in pumping rate. This resulted in a situation where data from any of the four observation wells could be equally well matched to any of several of the r/B-type curves from Hantush and Jacob (1955-TN4094). The shape of the drawdown curves is very similar after drawdown in the wells reaches a near steady value. However, when data are available from wells at different distances, an additional constraint

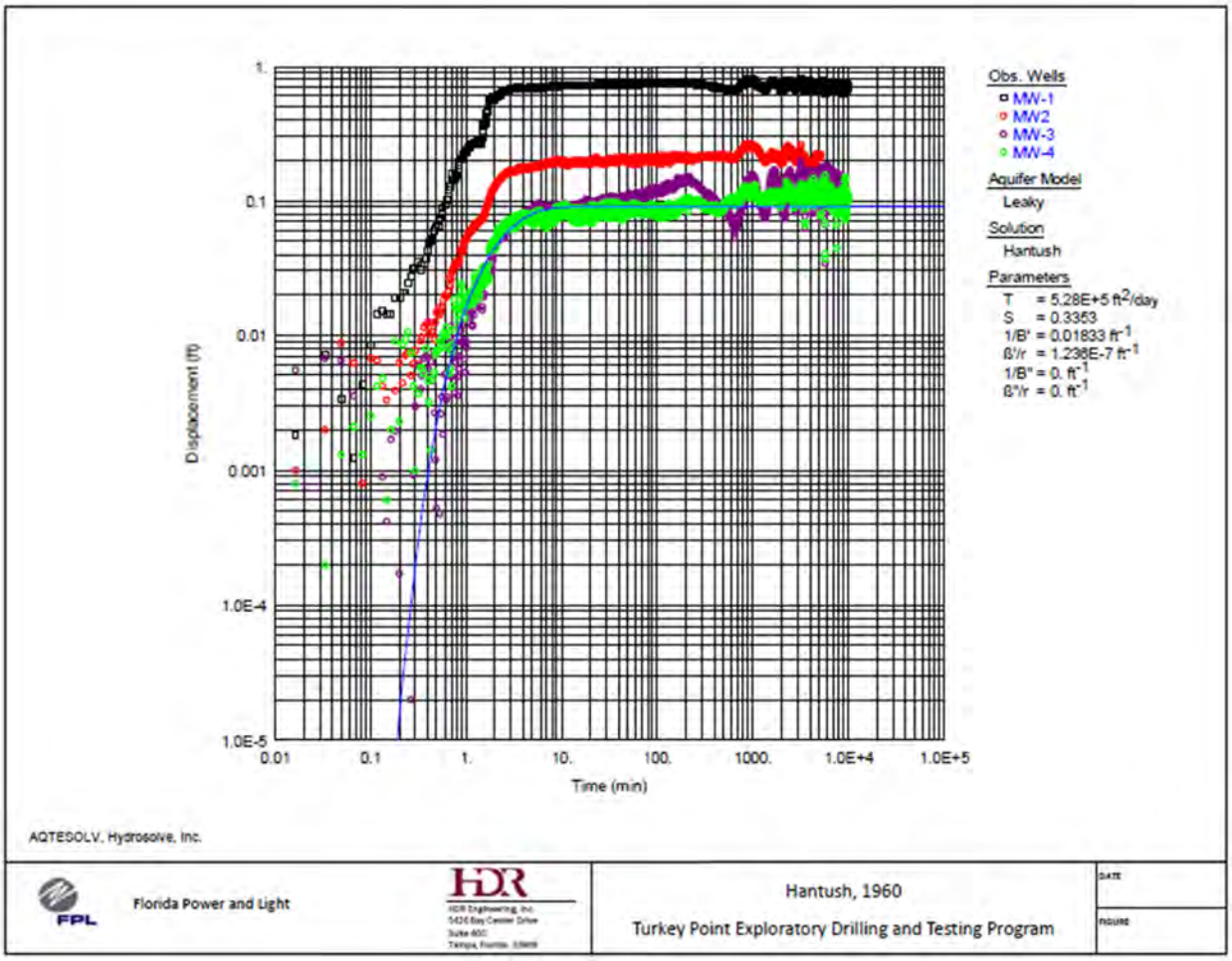

Figure G-1. Composite Graph of Drawdown Data vs. Time for the Turkey Point Aquifer Test. ***Graph shows match to data for well MW4, but listed values are for data for well MW-1 (FPL 2009-TN1263).***

may be added that allows the drawdown data from wells with different r values to match type curves which have proportional r/B values. To illustrate, the observation wells, their distance

from the production well, and the steady drawdowns interpreted by the staff for each well are listed in Table G-20. The flat portions of the data curves for wells MW1, MW2, MW3, and MW4 should match different type curves where the ratio of the r/B values are 0.4, 0.52, 0.94, and 1.0, respectively, compared to the *r/B* value calculated for MW4. The staff tested this approach by plotting straight lines representing the drawdowns for each well listed in Table G-20 on log-log paper at the same scale as the leaky-aquifer-type curves provided by Lohman (1972-TN4095). The staff found that using r/B = 1 to match the data for the nearest observation well (MW4) provided matches of data for the other wells to type curves having r/B values that are close to the expected r/B ratios. Using this approach the staff calculated relatively consistent values of K′/b′ with an average value of 0.265 (Table G-20) and estimated a vertical hydraulic conductivity of approximately 0.5 ft/d for the confining layer based on a thickness (b') of 2 ft.

Table G-20. Well Data Used in and Results from the Test Reinterpretation

Well Name	r (ft)	r/r MW4	s (ft)	s_{aq} (ft)	r/B	B (ft)	K′/b′ (day^{-1})
MW1	80	0.039	0.75	0.715	0.04	2,000	0.25
MW2	925	0.45	0.20	0.188	0.52	1,780	0.31
MW3	1,810	0.88	0.10	0.083	0.94	1,930	0.27
MW4	2,065	1.0	0.09	0.079	1.0	2,065	0.23
All Wells					Average	1,940	0.265

The staff's results differ substantially from those presented in FPL 2009-TN1263 Table 5.2, which, based on the listed K′ values, resulted from matching drawdown data from each of the observation wells to the r/B = 1 type curve. These matches resulted in low estimates of T and very high estimates of K′/b′ for the close-in wells. FPL noted this discrepancy in FPL 2009-TN1263, which summarizes:

> Calculated transmissivity (T) values … range from approximately 368,000 $feet^2$/day to 1,000,000 $feet^2$/day … The lowest T value was calculated at MW-1 DZ PI near the pumping well, and the higher T values were calculated at far-field wells MW-3 and MW-4 … The noted increase in hydraulic conductivity with scale is likely a natural consequence of the aquifer heterogeneity…. (FPL 2009-TN1263)

The hypothesized scale effect instead arises because drawdown data from the wells at different distances from the production well should match proportional r/B curve values, as described above.

G.3.1.2 K_0(r/B) Distance-Drawdown Solution

FPL (2009-TN1263) also performed a distance-drawdown an analysis using the Aqtesolv™ software package (HydroSOLVE, Inc. 2007-TN4091) This approach helps to avoid the problem of selecting the appropriate r/B curve, which are discussed in the preceding sub-section. The Aqtesolv™ solution provides an estimate of T of 8E5 ft^2/d and a K′/b′ value of 0.5 day^{-1}. The K′/b′ value is about twice the values determined from the composite plot analysis (discussed in the sub-section above), prompting a separate distance-drawdown analysis for this review. This analysis is based on the theory of de Glee (1930, not referenced), as summarized by Ferris et

al. (1962-TN4092), and involves use of a log-log-type curve of the steady-state, leaky-aquifer well function, $K_0(r/B) = 2\pi Ts/Q$, plotted vs. r/B. $K_0(x)$ is the modified Bessel function of second order and zero kind. NRC staff plotted the steady-state drawdowns listed in Table G-20 as x's, and a match was obtained, as shown in Figure G-2. For type curve parameters $K_0(r/B)$ and r/B = 1, the type-curve match provided values of s = 0.25 ft and r = 1,700 ft (Table G-21). These values result in a T of 870,000 ft^2/d and a K′/b′ of 0.3/d. Results for this analysis are closer to those determined from the time-drawdown analysis than the Aqtesolv distance-drawdown solution. To further test that solution, staff interpolated drawdown values from the Aqtesolv™ graph, listed as s_{aq} in Table G-20 and plotted these values as *'s, and shifted to match the type curve (Figure G-2). The same value of r = 1,700 ft at r/B = 1 was obtained, but the value of s determined from the type-curve match was 0.23 ft, resulting in T = 950,000 ft^2/d and K′/b′ = 0.33/d. Thus, uncertainties of a few hundredths of a foot in estimated steady drawdown can result in 10 percent or larger variations in estimated hydraulic properties.

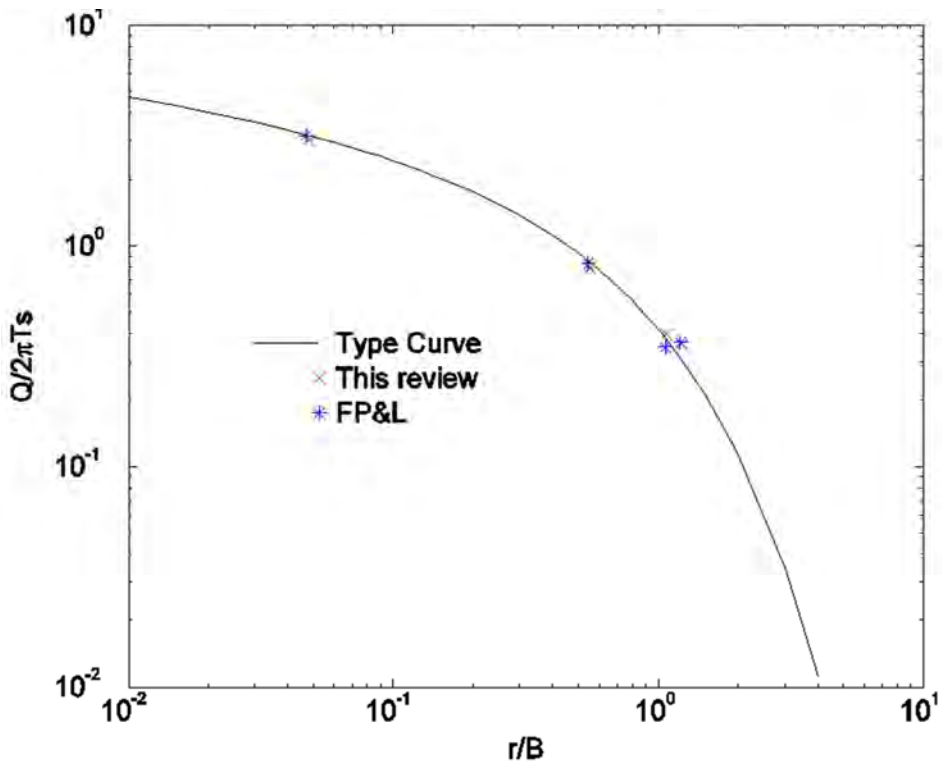

Figure G-2. Match of Drawdowns at Four Different Observation Wells to the Steady-State Distance vs. Drawdown Curve

Table G-21. Summary of Distance-Drawdown Solutions, Compared to Average of Hantush-Jacob Solution

Solution	T (ft^2/d)	B (ft)	K′/b′ (day^{-1})
Aqtesolv™	8.0E-05	1,230	0.53
$K_0(r/B)$, s	8.7E-05	1,700	0.30
$K_0(r/B)$, s_{aq}	9.5E-05	1,700	0.33
Hantush-Jacob (ave)	1.0E-06	1,940	0.265

Source: Hantush and Jacob 1955-TN4094

G.3.1.3 Summary

The Biscayne aquifer transmissivity (T) and the vertical hydraulic conductivity (kv) of the confining zone above the Biscayne aquifer are important because they control the rates at which water will flow into the RCWs from the aquifer and the bay and impact the amount that is drawn from each potential source. The NRC staff's analyses resulted in K′/b′ values that vary from 0.23 to 0.53 d^{-1}, and average about 0.3 d^{-1}. If all the vertical resistance to flow is imposed by the muck layer, which averages in thickness (b') of 2 ft, then its vertical hydraulic conductivity is about 0.6 ft/d. This value is close to that determined by FPL (2009-TN1263).

The NRC staff found that values of T between about 800,000 and 1,000,000 ft^2/d are obtained from time-drawdown analysis of the APT using consistent r/B values, or from distance-drawdown analysis. Differences in the calculated T values arise because of uncertainty in steady-state drawdowns of only a few hundredths of a foot. Values from the staff's analysis are comparable with values determined by FPL (2009-TN1263), which states "The mean for the calculated T values using drawdown data is approximately 700,000 $feet^2$/day." Also, "The calculated T value using a distance-drawdown method is 800,000 ft^2/d." Thus, in spite of some inconsistency in analysis methods, results from the analysis prepared by FPL are similar to those determined in the NRC staff review.

G.3.2 Description of Groundwater Modeling Performed to Help Evaluate Effects of Excavation Dewatering and Radial Collector Well Operation on the Biscayne Aquifer

This appendix describes three separate modeling efforts performed to estimate the effects of radial collector well (RCW) pumping on the Biscayne aquifer, Biscayne Bay, and other portions of the hydrologic environment including nearby drainage canals and the cooling canals of the industrial wastewater facility (IWF). Two of these modeling efforts were performed before the NRC issued the draft environmental impact statement (EIS) in 2015, while the third was performed afterwards. The staff also used the two earlier studies to simulate the effects of dewatering the Units 6 and 7 plant excavations. To further confirm their understanding of the groundwater hydrodynamics and to consider whether certain actions proposed after the two earlier modeling studies were completed would alter the earlier conclusions documented in the draft EIS (EIS, NRC 2015-TN4444), the review team performed a third modeling analysis (Oostrom and Vail 2016-TN4739).

FPL conducted modeling (FPL 2014-TN4069) using a local-scale groundwater model of the Biscayne aquifer including the portion of the aquifer underlying Biscayne Bay near the Turkey Point site. The NRC commissioned the U.S. Geological Survey (USGS), to conduct additional modeling to help identify the potential effects of RCW pumping (NRC 2014-TN3078). As indicated above, after the Draft EIS was issued, the review team itself performed a third modeling analysis.

Each of these hydrologic models provides an estimation of the effects of building and operating the proposed plants, however these estimations are imperfect due to a number of uncertainties. Uncertainty in groundwater models has been described as arising from 1) uncertainty in model parameters, and 2) uncertainty in the definition of the conceptual model framework including the

spatial and temporal variation in hydrologic variables (Neuman and Wierenga 2003-TN4090). Therefore, examining the results of the three modeling efforts provides a better understanding of the possible range of effects of building and operating Units 6 and 7.

The model used by the USGS model is a submodel of an existing regional-scale (Miami-Dade County) coupled surface-water/groundwater model originally created to evaluate then-recent hypersalinity events in Biscayne Bay, at the county scale, during 1996−2004 (NRC 2014-TN3078). The USGS model domain encompassed Biscayne Bay and included freshwater flows into Biscayne Bay through the offsite drainage canal system, exchange of groundwater between Biscayne aquifer and surface waterbodies including the Biscayne Bay, drainage canals, and the cooling canals of the IWF. It also included precipitation input to the bay, precipitation recharge to the Biscayne aquifer, evapotranspiration (ET) effects on bay salinity, and the effects of ET on recharge to the Biscayne aquifer. The USGS modified their existing model to include the cooling canals of the IWF, the proposed excavation dewatering wells, and four proposed RCW locations.

Both of the modeling efforts are approximations of the real physical system, and each has shortcomings that result in uncertainty in the modeling results. The FPL model assumes constant density fluid and does not represent the differences in density between fresh and saline water that can result in “density-driven” groundwater flow. The FPL model was strictly a groundwater model with surface-water features represented as boundary conditions. The FPL model area is much smaller than the USGS model and does not include as many offsite canals. However, the USGS model has much lower spatial resolution with 500 × 500 m cell size compared to FPL’s model which is variable and is refined to a 5 ft spacing in the area around the radial collector wells (FPL 2014-TN4069). Therefore, the USGS model’s representation of smaller-scale features is not as accurate as FPL’s model.

G.3.2.1 Summary of FPL Modeling

FPL performed groundwater modeling in support of its application for building and operating Units 6 and 7 at the Turkey Point site. The model was created using Visual MODFLOW, a commercial implementation of the USGS-developed MODFLOW 2000, and was a steady-state three-dimensional model that assumes constant density of the fluid being modeled. Measured heads applied in the model for non-seawater waterbodies (e.g., freshwater canals and hypersaline cooling canals) were corrected to equivalent seawater heads based on the fluid density ratio. The model and results are described in detail in Appendix CC of the FSAR (FPL 2014-TN4069). Therefore, only a brief summary and assessment are provided here.

The objectives of the model were to evaluate groundwater impacts of activities related to the building and operation of two new nuclear units by simulating groundwater flow in the Biscayne aquifer. The primary issues evaluated with the model were the following:

- expected rates of groundwater infiltration into excavations for the new reactor buildings
- origin of water pumped from the RCW, and
- sea water approach velocities to the bay floor during RCW pumping.

FPL calibrated the model by matching the groundwater level response to aquifer pumping tests performed at two wells (PW-7L and PW-7U) near the proposed plant locations and a well (PW-

1) near the proposed RCW on the Turkey Point peninsula. An additional aquifer test near the proposed plant locations (PW-6U) was simulated by the model as a "validation run."

FPL used the calibration process to estimate a variety of parameters which were included in their model. These included the horizontal hydraulic conductivity (Kh) and anisotropy (Kv/Kh; ratio of vertical (Kv) to horizontal (Kh) hydraulic conductivity) values for each of the 10 hydrogeologic units included in the model and the conductance values applied to head-dependent boundary conditions (cooling canals, regional canals, Biscayne Bay and model sides). The calibration parameters were varied manually until a model result was obtained that showed satisfactory agreement between simulated and observed pumping test drawdowns at monitored observation wells, as well as a reasonable match to understood directions and amounts of regional groundwater flow.

Model Results – Radial Collector Wells

Determining the environmental impacts of operating the proposed RCWs is the ultimate focus of the FPL groundwater model. The base case model results indicated that approximately 98 percent of water extracted from the RCWs originates in Biscayne Bay with most of the remainder coming from the cooling canals (industrial wastewater facility). Only 0.2 percent of the water produced was predicted by the base case model to come from the freshwater portion of the Biscayne aquifer. This is the water entering the model domain from head-dependent boundaries along the northwest corner of the model. With an assumed RCW continuous withdrawal of 120 Mgd, the predicted volume of water removed from the inland Biscayne aquifer was 0.36 Mgd or 250 gpm according to the base case FPL model. The worst-case sensitivity analysis conducted by FPL regarding extraction of water from the Biscayne aquifer was based on assuming values of vertical conductivity that were 50 percent of the values applied in the base case for all the model layers. This “worst-case” analysis predicted that 1.4 percent or 1,250 gpm would be continuously extracted from the Biscayne aquifer.

The model results indicated that the velocity of water moving downward from Biscayne Bay into the seabed is very low at less than 0.001 cm/s for all sensitivity cases.

The base case model predicted that 2.0 percent of the water extracted by the RCW would come from the industrial wastewater facility. A "worst" case of 3.2 percent of the extracted water coming from the industrial wastewater facility was predicted by cutting the vertical conductivity of all layers in half.

Assessment – Radial Collector Wells

The FPL model provides a reasonable, although uncertain, prediction of the impact of the RCWs on the Biscayne Bay and freshwater resources within the Biscayne aquifer. Parameter uncertainty in the FPL model prediction for the RCW water source is caused by several factors including the following:

- limited area of the pumping test observations used for calibration compared to the extent of the model
- large number of model parameters compared to the limited amount of calibration data

- limited data on the site-specific hydraulic properties of hydrogeologic units except at the pump test locations used in calibration
- lack of data on the hydraulic conductivity of the sediment at the bottom of Biscayne Bay.

Incomplete knowledge of the hydrogeologic system being modeled, the impacts of assuming constant density fluid, the assumption of a steady-state flow system, and problems related to discretization of the model into a cellular grid also cause conceptual model and structural uncertainty in the FPL model results.

One of the most significant uncertainties in the model is the hydraulic conductivity assigned to the sediment at the bottom of Biscayne Bay. The bay bottom was characterized as either "offshore sediment" or exposed "Miami limestone." Water entering the RCW from the bay must pass through one of these materials to enter the higher conductivity "upper high flow zone (UHFZ)" where the RCW are placed.

The NRC staff identified the following issues of potential concern with the FPL model setup:

- Specified heads for the "general head boundary conditions" at the northwest and southwest corners of the model were inconsistent. For the calibration simulations, the western boundary ends at the northwest corner with a specified head of 0.85 ft, while the northern boundary ends at that corner with a value of 0.65 ft. The western boundary ends at the southwest corner with a specified head of -0.2 ft, while the southern boundary ends at that corner with a value of -0.95 ft.
- The non-uniform lateral model discretization (row and column widths) exhibits moderately larger changes than the commonly accepted practice for finite-difference models. The accepted standard practice is for an increase in width between adjacent rows (or columns) to be 50 percent (width ratio of 1.5) or less, whereas the FPL model has increases of 100 percent.
- While the layer elevations mostly vary in a smooth fashion, there are places where adjacent cells of the same layer are offset vertically with no overlap, which differs from the accepted standard practice of 50 percent overlap. The lack of overlap is a result of the magnitude in elevation change over distance combined with the thinness of the layer.

However, the NRC staff expects that the impact of these issues is relatively minor in comparison to the uncertainty in the model parameter calibration.

FPL's base case model predicted that 2.0 percent of the water extracted by the RCW would come from the industrial wastewater facility. This prediction is also regarded as uncertain because of the parameter calibration uncertainty mentioned above and because of the potential effects of variable density fluid on the migration of the hypersaline plume. If the RCWs are operated continuously, then it is likely that the hypersaline water flow induced by the RCW from the industrial wastewater facility would be captured by the RCW. However, intermittent operation could result in an increase of hypersaline flow into the aquifer beneath the bay that could migrate into the bay when the RCW is not operating. The steady-state nature of the FPL model and the assumption of constant density fluids make the model inadequate for modeling this potential scenario.

The NRC staff performed limited runs of the FPL model to verify performance and check some additional sensitivity cases of interest. The main item of interest was the volume of water captured from the inland portion of the Biscayne aquifer along the northwestern corner of the model. A sensitivity case of 10X the base case offshore bay sediment hydraulic conductivity combined with 10X the base case Miami limestone sediment hydraulic conductivity and 10X lower general head boundary conductance was performed. The results showed that approximately 15 percent more water would be captured through the general head boundary along the northwestern corner of the model under these conditions.

Model Results – Inflow to the Power Block Excavations

The FPL model predicted that pumping rates of 96 gpm would be necessary for dewatering each of the excavations at Units 6 and 7. This is based on installation of essentially impermeable grout curtains at the sides of the excavations and grouting of the rock at the base of the excavation.

Assessment– Inflow to the Power Block Excavations

The model results for the dewatering calculations are also affected by model uncertainties discussed above. However, the NRC staff expects the impact of model uncertainty on these calculations to be less significant because of the smaller scale of the focus area. The permeability of the grouted base rock and side walls for the excavation are the primary parameters controlling inflow, and are easier to estimate than the large-scale hydrogeologic parameters that control the source of water captured by the RCW. Engineering controls are also feasible for mitigation of any adverse conditions that are encountered during the excavation activities.

Conclusions

The environmental impact of operating the proposed RCW system is the most important issue addressed by the groundwater model. The FPL model results indicate that continuous operation of the RCW results in extraction of a relatively small volume of water from the inland portion of the Biscayne aquifer and that the velocity of water moving downward from Biscayne Bay into the seabed is very low at less than 0.001 cm/s. The NRC staff's largest concern with the model is caused by uncertainty in the model parameters, especially in light of the limited area of calibration data and the large number of parameters that must be estimated. This may have a significant impact on the predicted volumes of water that would be extracted from the inland potion of Biscayne aquifer along the northwest corner of the model area and the amount captured from the industrial wastewater system. The NRC staff regards model estimates of inflow to the proposed excavations as more accurate than estimates of RCW captured water sources because of the knowledge of hydraulic parameters in that immediate area of the planned excavations.

G.3.2.2 Summary of USGS Modeling

The NRC commissioned the USGS to perform a numerical modeling study of the effects of the operation of a proposed RCW system at the Turkey Point site on surface and groundwater

salinity. The resulting report (NRC 2014-TN3078) represents part of the review team's technical basis in its impact determination in this environmental impact statement (EIS).

Purpose of the Study

FPL proposes installing the RCWs at the Turkey Point site for use as a backup source of cooling water for proposed Units 6 and 7 in case of the loss of the normal water supply (reclaimed water from Miami-Dade County waste water treatment system). Neither the reclaimed water nor the water from the RCW system provides a safety-related function. The design of the RCW system and the flow from it are described in Chapter 3 of this EIS. Because of the potential during operation of the RCWs to alter the salinity of two sensitive and significant local water resources—the Biscayne Bay and the Biscayne aquifer—the review team commissioned the USGS independent modeling study. Salinity in Biscayne Bay is a concern because of the ongoing actions under the Comprehensive Everglades Restoration Plan (CERP) to restore freshwater flows to Biscayne Bay National Park (USACE/SFWMD 2011-TN1038). The Biscayne aquifer has been designated a sole-source aquifer by the U.S. Environmental Protection Agency and is critical to the region's freshwater supply.

Unique from other numerical modeling studies included in the review team's assessment, the USGS model explicitly considered density effects on the flow within and between the groundwater and the surface-water systems. The spatial and temporal patterns of salinity are primarily controlled by the flow of water. Therefore, an understanding of various processes resulting in flow is required for the review team to understand the plausible impacts of the RCW operation.

The commissioned study discussed herein relied on a numerical model developed and applied previously to this domain by USGS (NRC 2014-TN3078). This numerical model was used to simulate specific conditions that are understood to exist at the Turkey Point site and under boundary conditions consistent with the operation of the RCW system. The site conceptual model and the numerical model are discussed below.

Conceptual Model

The conceptual model of the region is consistent with a coastal freshwater-saltwater interface. Freshwater results from precipitation that infiltrates into the groundwater system and flows down gradient toward the ocean. As it approaches the seawater, the less dense freshwater tends to flow over the more dense seawater forming a saltwater wedge. The location of this saltwater wedge can move in response to increases and decreases in groundwater recharge from precipitation and also in response to groundwater pumping. Excess precipitation that does not enter the groundwater system through recharge can enter the ocean via sheet flow and channel flow. Several canals discharge freshwater during the wet season (summer to fall). However, along a portion of the area to the south of Turkey Point, the cooling canals prevent sheet flow from discharging to Card Sound and Biscayne Bay directly east of the cooling canals. The warm, hypersaline water in the unlined cooling canals also creates a plume of dense hypersaline groundwater under the cooling canals. Therefore, the site conceptual model reflects these conditions unique to the Turkey Point site. Further discussion of the hydrologic environment including the cooling canals can be found in Section 2.3 of this EIS.

The analysis considered the surface water (notably Biscayne Bay) to be vertically mixed (NRC 2014-TN3078). The review team considered this assumption and determined that because of the shallow depths of Biscayne Bay, particularly near Turkey Point, this assumption was not unreasonable for the examination of potential RCW impacts on salinity in Biscayne Bay. While localized areas of salinity stratification may develop, wind mixing is expected to keep Biscayne Bay well mixed. The analysis used two-dimensional circulation, which is driven in response to wind forcing and tidal elevation boundary conditions (NRC 2014-TN3078). The analysis also assumed that the tidal boundary had a typical seawater salinity of 35 practical salinity units (psu).

Given that one of the motivations for this study was to consider density-driven flow within the groundwater system, the conceptual model explicitly allows for multiple layers and for both vertical variations in hydrogeologic flow-related parameters and for salinity variations. The boundary conditions for the groundwater portion of the model are the freshwater piezometric heads at the boundary of the domain and the areal recharge rates over the extent of the land surface of the domain, which vary seasonally.

The conceptual model explicitly considers the surface-water/groundwater interface with exchange allowed in both directions depending on pressure gradients from upgradient freshwater inflows to groundwater, water-surface elevation differences along canals, well pumping, seepage of cooling canal waters to groundwater, and tidal head variation (NRC 2014-TN3078). For instance, marine waters of Biscayne Bay water can percolate into the bed, enter the groundwater system, and enter the RCWs, and freshwater can enter the Bay through groundwater discharge.

Evaporation of seawater results in increases of salinity. Poorly mixed shallow marine areas without sufficient freshwater inflow are likely to become hypersaline as a result of evaporation. The study included the effect of evaporation on salinity (NRC 2014-TN3078).

As described in Section 2.3 of this EIS, the groundwater underneath Biscayne Bay has salinity levels similar to the marine surface waters. Below the freshwater layer landward of Biscayne Bay, there is a wedge of saline water that intrudes inland. The freshwater underlying the land has a somewhat higher piezometric head than the groundwater underlying Biscayne Bay; hence, there is a flux of freshwater eastward toward Biscayne Bay. Seasonal rainfall patterns also influence the flux of freshwater with increased runoff and surface-water discharge to Biscayne Bay and increased infiltration into the surface layers of the groundwater. Additional components of the surface-water/groundwater system that exist at present include water-supply pumping around population centers, drainage ditches that intercept shallow groundwater, and the cooling canals at Turkey Point. Inland water-supply pumping withdraws freshwater from the groundwater, thereby reducing the piezometric head that drives the salinity wedge seaward. Drainage ditches intercept shallow groundwater and transport it for discharge to Biscayne Bay. These processes are included in the conceptual model.

Numerical Model

The USGS model is based on a previously developed regional-scale model (Lohmann et al. 2012-TN1429) that integrated surface-water and groundwater processes to study flows into and out of Biscayne Bay (Figure G-3). The original model's intent was to examine regional-scale processes that influence Biscayne Bay salinity.

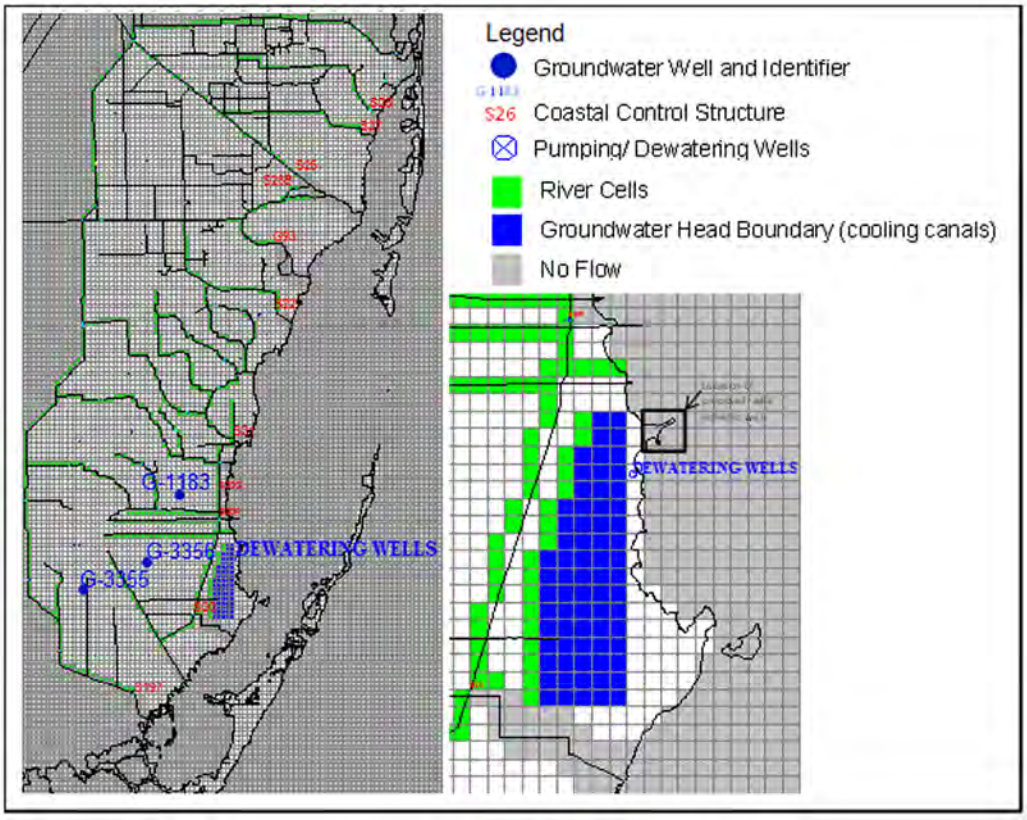

Figure G-3. USGS Model Domain and Grid Used for Salinity Analysis of RCW Pumping at Turkey Point. ***An inset of the grid in the vicinity of Turkey Point is included. (Taken from NRC 2014-TN3078, Figure 2)***

Both model studies (Lohmann et al. 2012-TN1429; NRC 2014-TN3078) covered the period January 1996 through December 2004, a duration of 9 years. This simulation period was chosen because the Lohmann et al. model was calibrated for this period. The canal inflows, precipitation, and meteorology applied in the NRC-commissioned study are the same as those used by Lohmann et al. (2012-TN1429). For the regional-scale analysis, the model used a 500 m by 500 m grid spacing to define the physical features of the model domain. The model uses 20 vertical layers that represent the whole aquifer, with one of those layers representing Biscayne Bay. The surface layer is 4 m thick, the second layer is 1.5 m thick, and the remaining layers are 2.75 m thick. The NRC commissioned study (NRC 2014-TN3078) updated the previously developed model to include (1) the cooling canals and (2) the representation of two temporary dewatering wells during the construction period at the proposed site for the Unit 6 and 7 reactors for the scenarios. Pumping from the dewatering wells was only included in the base case. The cooling canals were represented in the model by 70 cells for which the water-surface elevations were specified and the salinity was set to a constant 65 psu. The two dewatering wells were represented in the model in one cell and were set to pump for a 6-month period (June 2001 through December 2001). The inclusion of these two updates into the Lohmann et al. (2012-TN1429) model constituted the base case of the analysis.

For the evaluation of RCW pumping, the entire RCW system was represented in the model by four grid cells. When active, the total RCW pumping rate was set to 490,536 cubic meters per

day (m^3/d) (90,000 gpm). Model inputs that were varied in the commissioned study were (1) the RCW withdrawal layer (layer 3 or layer 5) in the scenarios, (2) the distribution of RCW well intakes in model, (3) the RCW pumping period, and (4) vertical hydraulic conductivities and leakage of the subsurface layers (NRC 2014-TN3078). The commissioned report did not present results for all combinations of the varied inputs because the modeling results of some scenarios were not significantly different from the ones that were included in the report. The analyses ultimately included were for RCW groundwater extraction from layer 3 and for the well intakes distributed along the RCW intake pipes (NRC 2014-TN3078).

In regard to the RCW pumping periods, the commissioned study examined (1) continuous pumping (the most conservative pumping option), (2) 90-day pumping during the annual dry period, and (3) alternating periods of 30 days pumping and 90 days no pumping (NRC 2014-TN3078). Each of these pumping periods is longer than the 60 days mentioned in Section 5.2.1.2 of this EIS as the limit currently proposed by FDEP as the permit condition for operating the wells. Consequently, each pumping period analyzed by the commissioned study (NRC 2014-TN3078) is more conservative than the FDEP conditions would actually permit. Ultimately, the review team included only the continuous-pumping and 90-day-pumping scenarios, because they were the most conservative of the three pumping scenarios examined by USGS. Continuous pumping does not allow any time for system recovery as would occur with the alternating pumping and no-pumping scenarios.

In regard to vertical conductivities, the NRC (2014-TN3078) study examined (1) the values used in the previous study (Lohmann et al. 2012-TN1429), which were used in the base case, (2) decreased vertical conductivity in the subsurface layers plus decreased leakage between surface-water and groundwater layers, and (3) decreased vertical conductivity in all subsurface layers except layers 3, 4, and 5 (RCW extraction layers). The review team only included the first of these realizations because it was based on the calibrated model of the Biscayne Bay and aquifer system. Also, the review team expects that any reduction of vertical conductivity would decrease the effect of RCW pumping on Biscayne Bay salinity.

The commissioned study specified that initial conditions used to start the scenario analyses be the same as the final state of the base case in order to provide each of the scenarios with a common starting point. The specified initial conditions include heads, water levels, and salinity.

Results

The alterations on the salinity in the groundwater and in Biscayne Bay predicted by the USGS model are discussed in the following sections.

RCW Pumping Effects on Groundwater Salinity

At the end of the base case run, the predicted potentiometric surface showed a slight depression along the coast near Turkey Point that is the result of pumping the RCWs in the area that is included in the model (Figure G-4; NRC 2014-TN3078). Layers 2 and 3 were selected for plotting because they are just below Biscayne Bay and any canals, so that any groundwater effects from RCW pumping on Biscayne Bay will be transmitted through these two layers. For the continuous-RCW-pumping scenario, the USGS model predicted a cone of depression that surrounded the RCWs and extended laterally for several hundred meters (NRC 2014-TN3078).

The model predicted that the cone of depression for the continuous-pumping case would be present at the end of the simulation because there was no opportunity for recovery. For the 90-day-pumping case, the model predicted that the cone of depression would not be evident at the end of the simulation because the system would have fully recovered after 275 days of no pumping.

The effect on regional groundwater potentiometric head to the northwest and west of the RCWs and Turkey Point site was predicted to be minimal. Sensitivity tests with vertical conductivity predicted there could be slightly larger changes in potentiometric head, which were attributed to a slightly landward movement of higher density (higher salinity) groundwater (NRC 2014-TN3078). The review team notes that these ranges of potentiometric head were within the range of uncertainty and predictive error of the model.

The salinity results at the end of the simulations for layers 2 and 3 within the groundwater system are shown in Figure G-5 (NRC 2014-TN3078). The blue regions landward of the coast represent freshwater. The green regions are where the marine water was predicted to infiltrate into the first two groundwater layers. The red zones are the hypersaline (high density) plume originating from the cooling canals.

For the area north of the hypersaline plume Figure G-5 the model predicts that in the continuous-pumping case, salinity would decrease landward of Turkey Point in comparison with the base case, while in the 90-day-pumping case, there would be a smaller decrease in salinity. For the continuous-pumping case the model predicts an increase in salinity in layer 3 (Figure G-5) directly under Turkey Point (essentially in a single grid cell), and a decrease in salinity north of the hypersaline plume. For the 90-day-pumping scenario, a decrease in salinity north of the hypersaline plume was also predicted, though the decrease was smaller than for continuous pumping. The smaller change results from the 9 months of recovery per year that is modeled in the 90-day-pumping scenario.

The change in groundwater salinity predicted by the model was assessed by finding the greatest differences for each grid cell between a scenario and the base case (NRC 2014-TN3078). The results at the end of the simulations of the greatest salinity differences for the continuous-pumping and 90-day-pumping scenarios are shown in Figure G-6. Note that the maximum predicted salinity differences for each model grid cell would not necessarily occur in the same layer, but this analysis provided an overall trend of salinity change. The predicted penetration into the groundwater system of the hypersaline plume from the cooling canals produced the ring of high positive change that surrounds the Turkey Point facilities. The model predicted greater freshening of the groundwater under the continuous-pumping scenario than under the 90-day-pumping scenario. The freshening is shown by a negative change in salinity centered northwest of Turkey Point. The predicted change, with the inclusion of RCW pumping, likely results from the withdrawal of a portion of the hypersaline plume from the groundwater system. Because the model conserves mass, withdrawal of groundwater results in water being drawn from other sources to replace it, and the freshening in this region could be due to predicted inflow from either freshwater or marine waters.

Examination of the total volumetric exchange between surface waters and groundwater showed that for the base case the model predicted a tendency toward discharge from the aquifer to Biscayne Bay (Figure G-7), though the base case rates were small (<500 m^3/d). Landward of

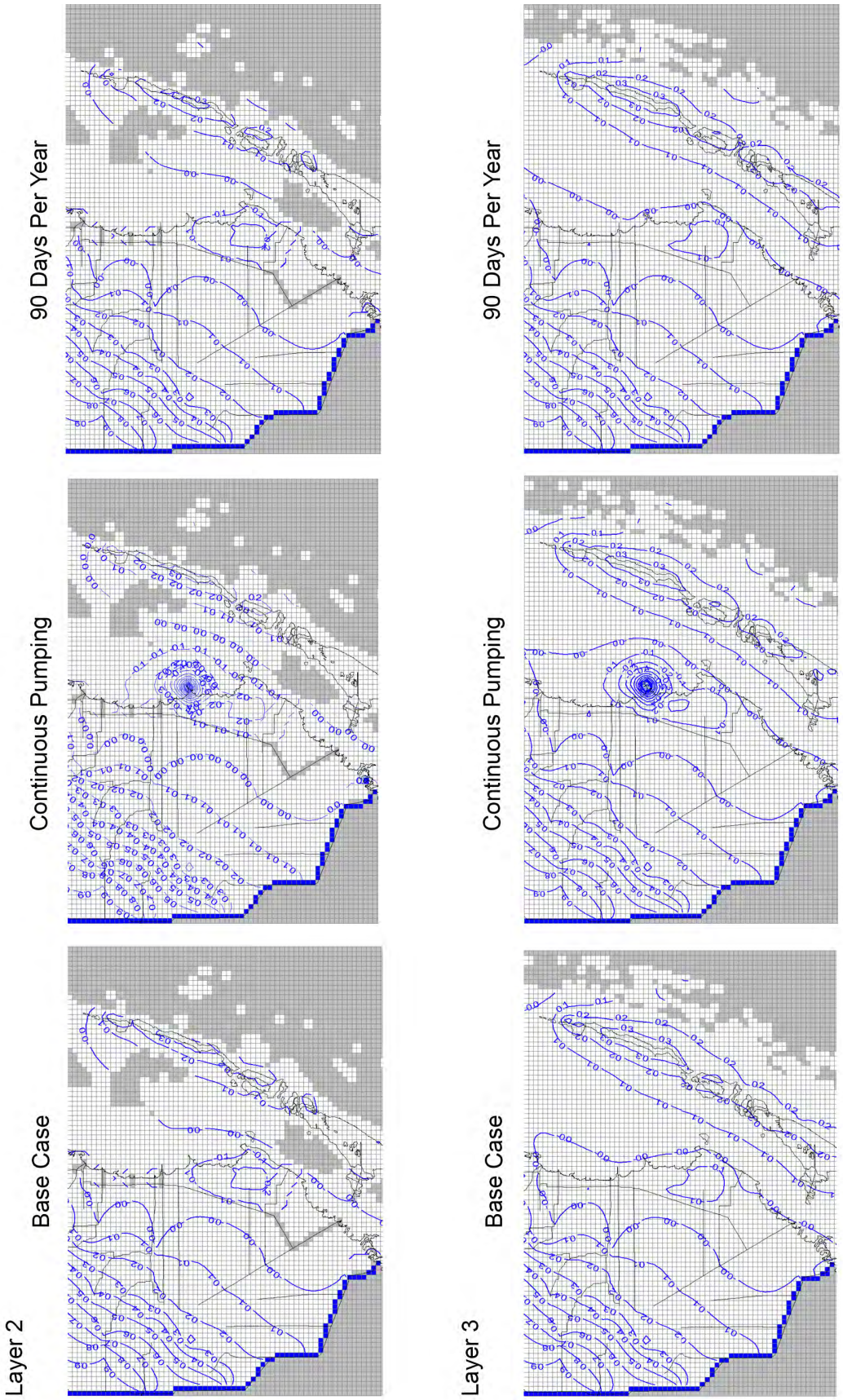

Figure G-4. Potentiometric Surfaces for Base Case and Continuous-Pumping and 90 d/yr Pumping Scenarios at the End of the 9-Year Simulations. ***Units are meters of elevation (NAVD88). (Taken from NRC 2014-TN3078, Figure 5, Figure 6A, and Figure 7)***

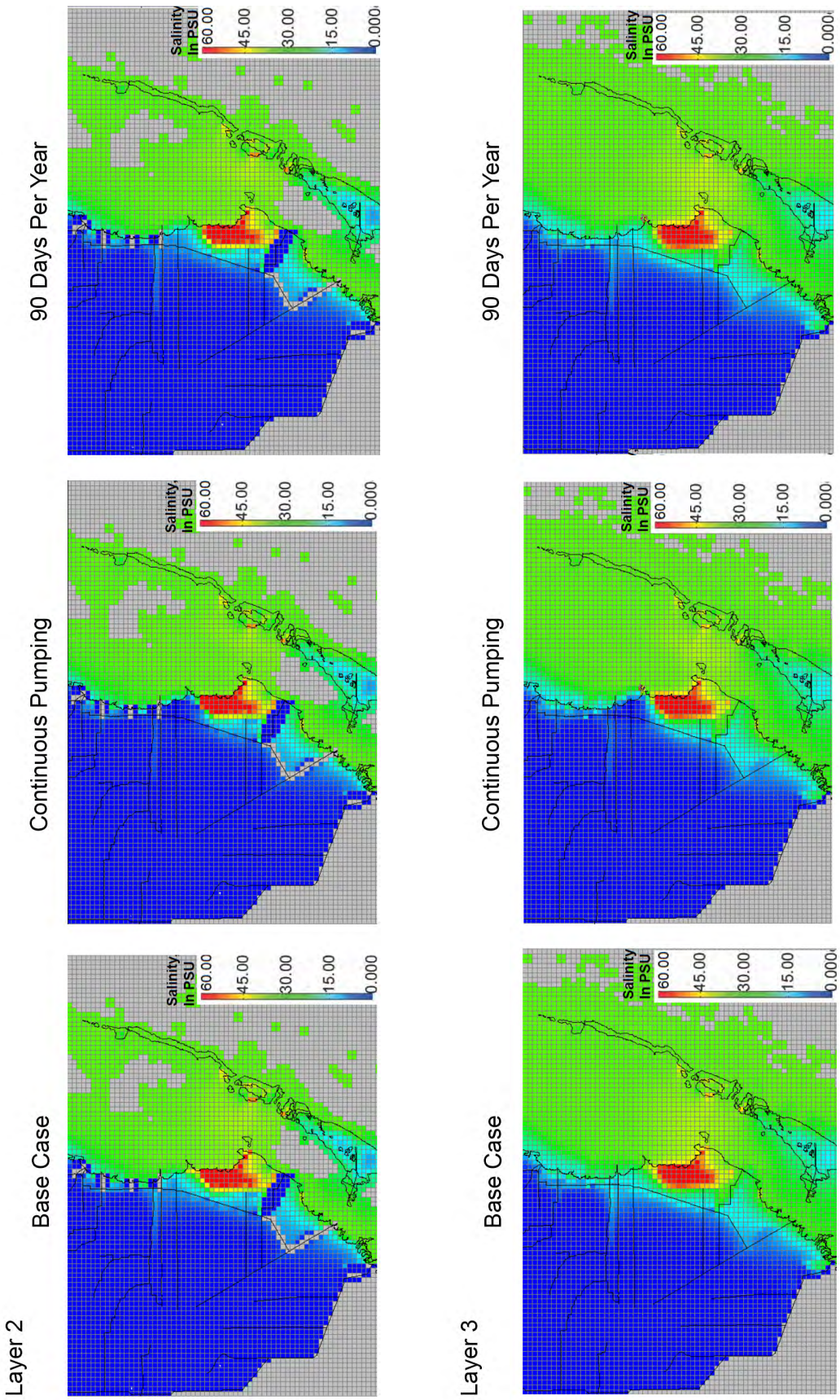

Figure G-5. Salinities for Base Case, Continuous-Pumping, and 90 d/yr Pumping Scenarios at the End of the 9-Year Simulations. ***Units were practical salinity units. (Taken from NRC 2014-TN3078, Figure 17, Figure 18A, and Figure 19)***

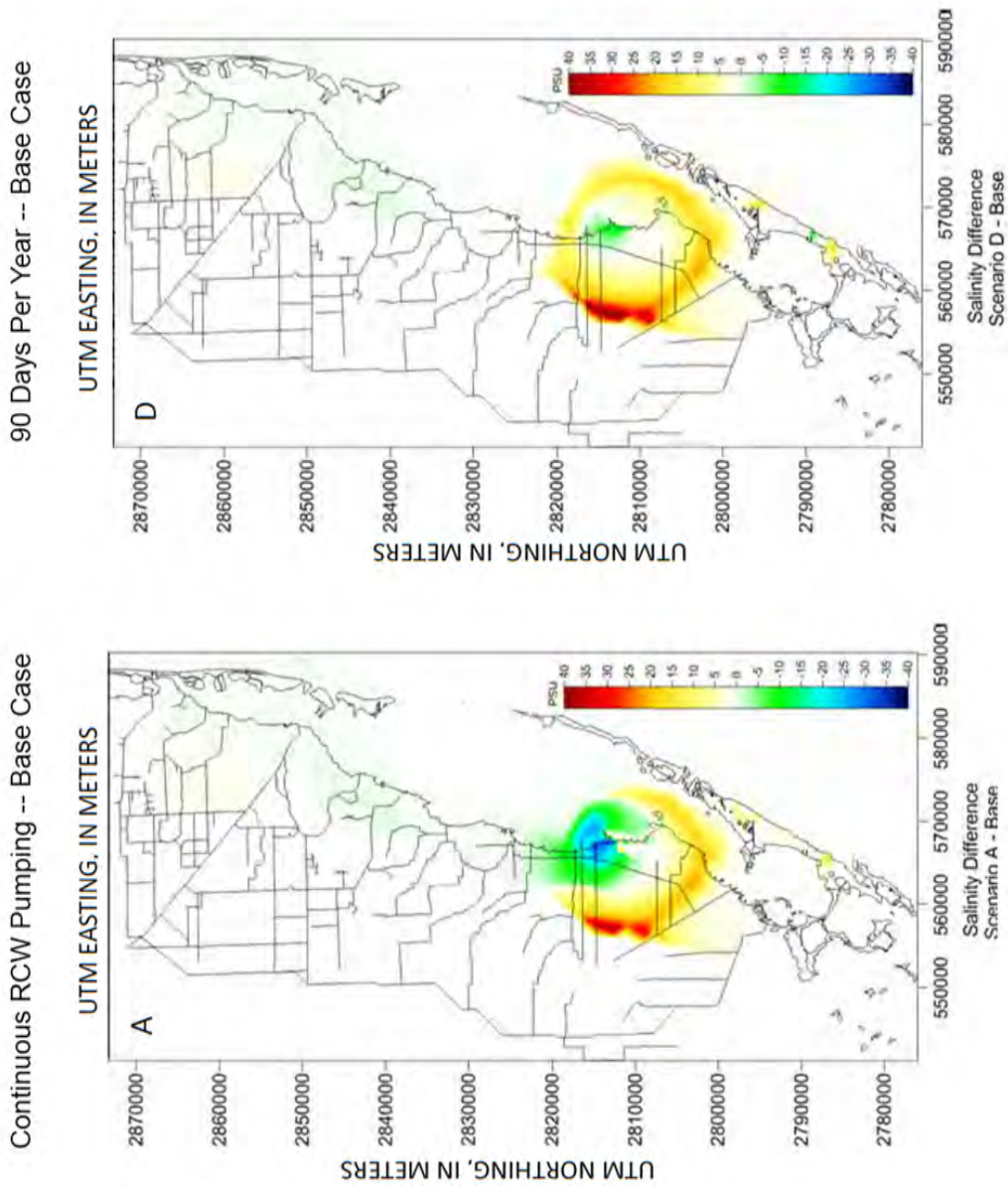

Figure G-6. Differences between Maximum Salinities between the Continuous RCW-Pumping Case and the Base Case and between the 90 d/yr Pumping Case and the Base Case (Taken from NRC 2014-TN3078, Figure 16b)

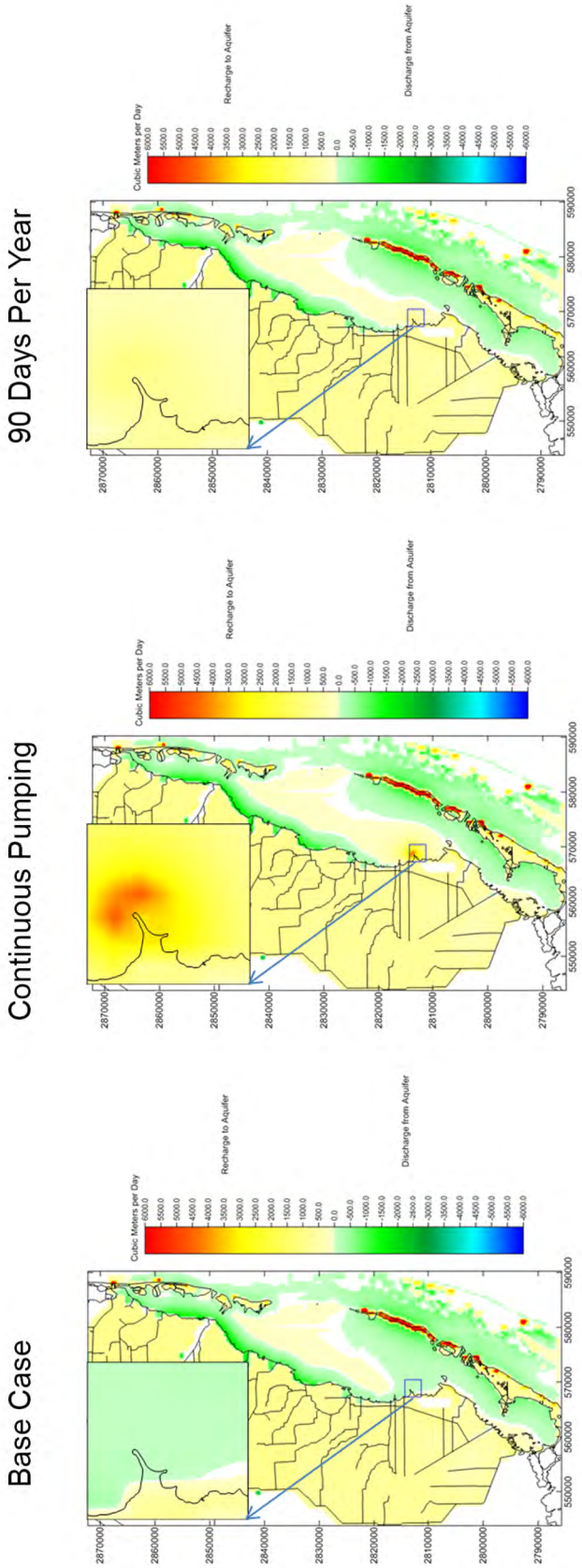

Figure G-7. Total Leakage (m^3/d) at the End of the Simulation for the Base Case, Continuous RCW-Pumping, and 90 d/yr Pumping. (Taken from NRC 2014-TN3078, Figure 26 and Figure 27)

Biscayne Bay, the total volumetric exchange predicted for the base case tended toward recharge, as expected with the occurrence of precipitation and infiltration into the land. For the continuous-pumping case, the model predicted a tendency for high recharge (inflow) from Biscayne Bay into the aquifer, as expected with RCW pumping, with rates locally around 5,000 m^3/d. For the 90-day-pumping scenario, the results tended toward recharge but without the higher localized recharge rate predicted with continuous pumping.

RCW Pumping Effects on Biscayne Bay Salinity

To investigate the salinity response in Biscayne Bay to RCW pumping, the review team examined model output results at locations near Turkey Point (NRC 2014-TN3078) corresponding to the measurement stations reported in this EIS Table 2-9, as well as three additional stations further north and close to Turkey Point (Figure G-8). Only the continuous-pumping scenario was included in the examination of Biscayne Bay salinity because the USGS model predicted the largest effects on groundwater for this scenario and it provided an upper bound of salinity variation of all potential RCW-pumping scenarios.

Time series of salinity results and salinity differences for the seven stations are shown in Figure G-9. Generally, the model predicted that salinity would exhibit seasonal variation due to freshwater inflows from drainage canals into Biscayne Bay, while increases in salinity would result from evaporative losses. For both the base and continuous-pumping cases, the largest seasonal variations were predicted at the northernmost locations (station A and B), with the smallest seasonal variations around Turkey Point (station C). Model results for locations closest to the measurement stations exhibited an intermediate range of seasonal variation. The north-south differences in seasonal salinity variation was likely caused by the northern portion of the region receiving relatively larger inputs of freshwater inflows from canals during the wet season.

The review staff computed the summary statistics (Table G-22) for salinity time series for the stations shown in Figure G-9. As suggested by the variation seen in the time-series plots, the standard deviations were largest for the northernmost stations examined. The minimum and maximum salinities also varied by location, with the largest maximum and smallest minimum predicted for the northernmost stations. For the tidal boundary, the primary source of water for Biscayne Bay, the model had the salinity set to 35 psu (Lohmann et al. 2012-TN1429). In comparison with the measured stations (EIS Table 2-9), the maximum salinities from the NRC commissioned study were smaller than observed at the measured stations (NRC 2014-TN3078). However, the periods from which the data were available were not the same between the measured data (2005 onward) and model results (2004 and earlier), so that direct comparisons are not possible.

The review team finds that the salinity differences between the continuous-pumping and base cases varied between +2 psu to -2 psu, but with most variations between +1 psu and -1 psu (Figure G-9). The model predicted an anomalous increase within the first year (1996) because of the onset of pumping, but this was wiped out by the start of 1997. Variations beyond +2 psu and -2 psu were predicted to be of very short duration.

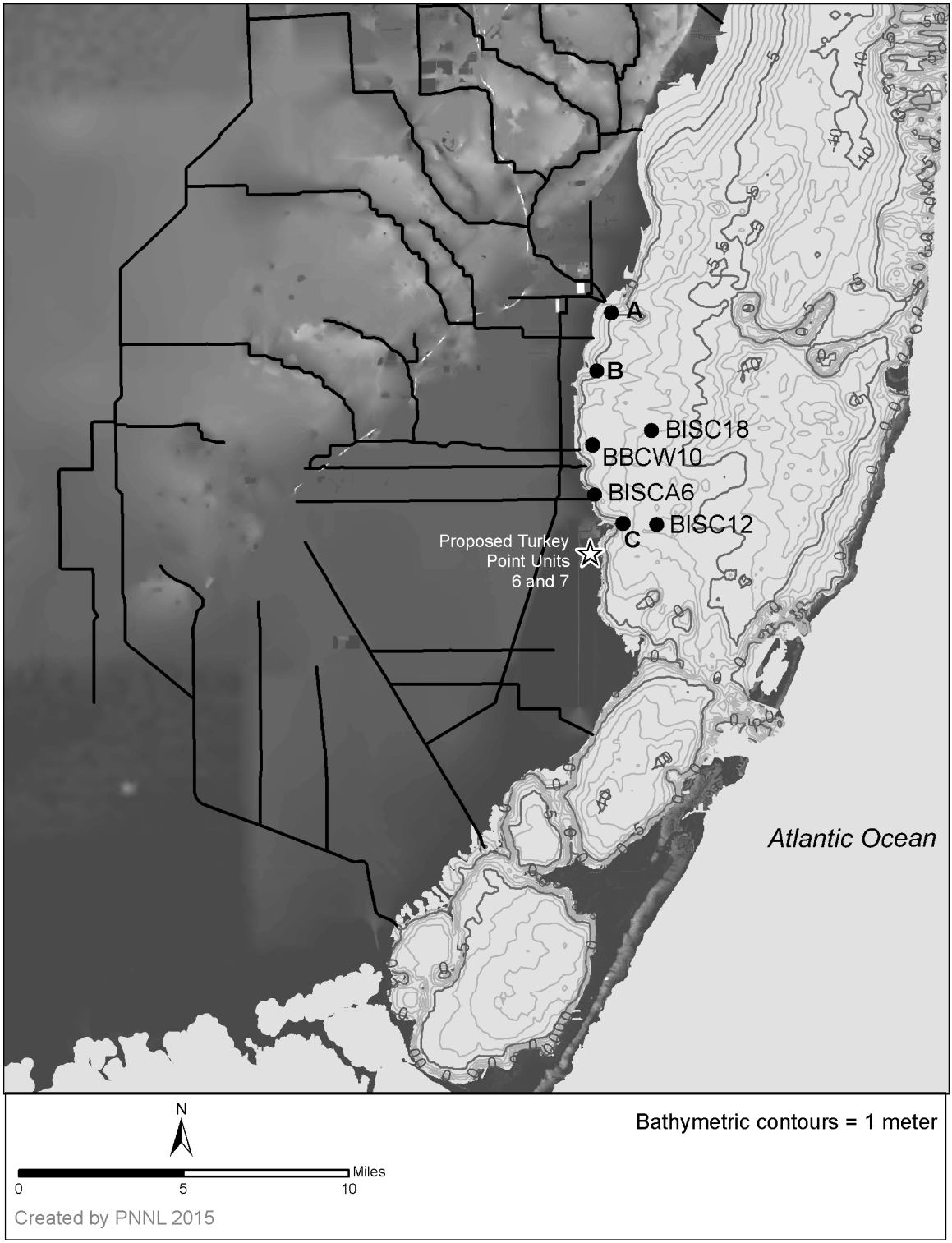

Figure G-8. Locations Where Salinity Time Series from USGS Model Were Examined

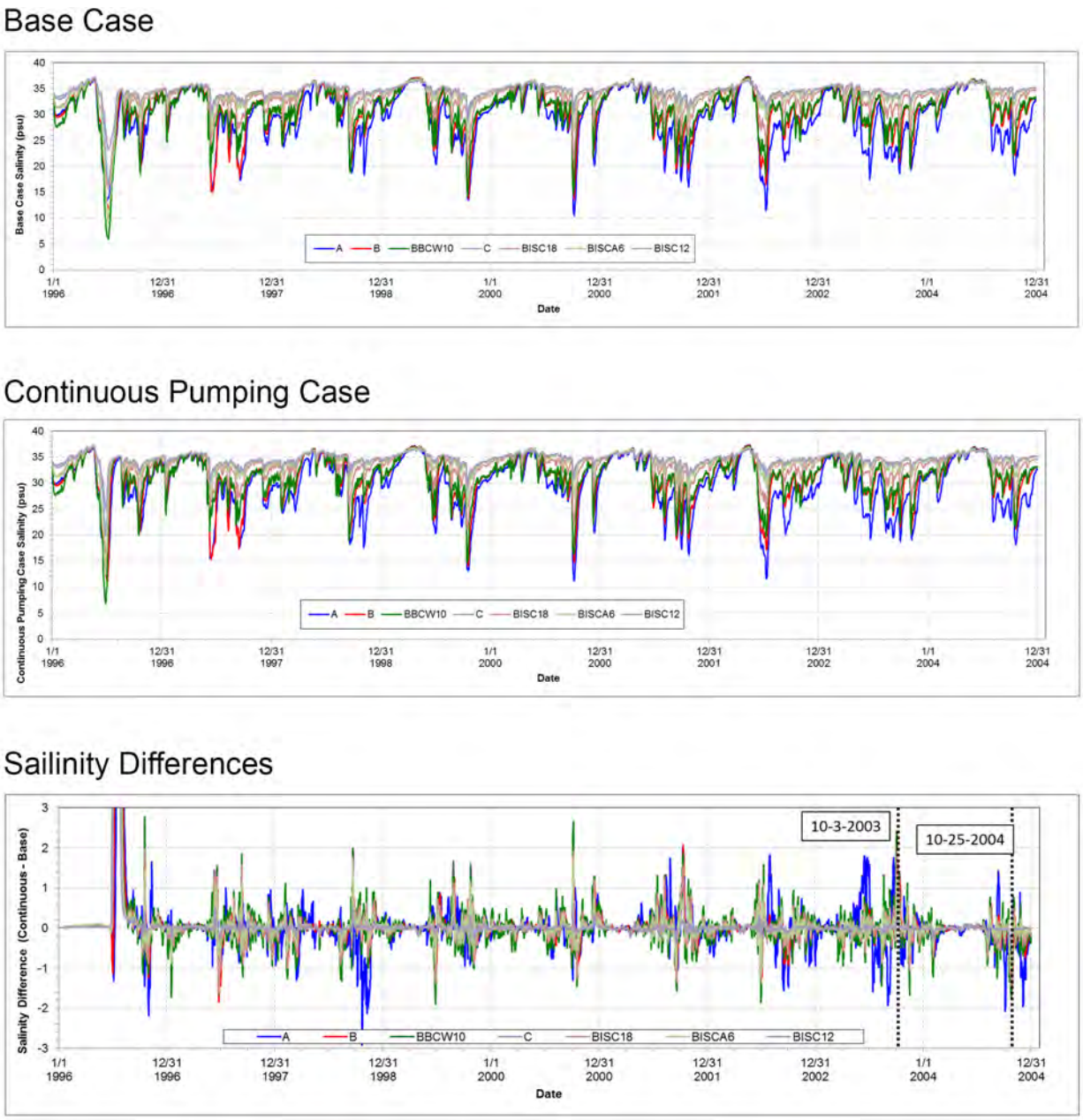

Figure G-9. Salinity and Salinity Differences (psu) from USGS Model at Locations Indicated in Table G-22. ***The dashed lines indicate the times for which spatial variations were examined (see Figure G-10 and Figure G-11).***

Table G-22. Summary of Predicted Salinity for the Period January 1, 1997 through December 31, 2004 near the Turkey Point Site at Stations Shown in Figure G-9

Station	Number of Time Intervals	Mean (psu)	Standard Deviation (psu)	Minimum (psu)	Median (psu)	Maximum (psu)
Base Case						
A	2,922	29.62	5.08	10.48	30.18	37.35
B	2,922	31.24	4.21	13.81	31.84	37.24
BBCW10	2,922	31.66	3.62	14.36	32.02	37.05
BISC18	2,922	33.56	2.34	20.92	33.98	36.91
BISCA6	2,922	34.41	1.48	24.75	34.62	36.97
C	2,922	34.67	1.14	28.26	34.81	36.90
BISC12	2,922	34.76	0.94	29.27	34.86	36.65
Continuous-Pumping Case						
A	2,922	29.58	5.09	11.19	30.13	37.32
B	2,922	31.22	4.20	14.02	31.81	37.24
BBCW10	2,922	31.65	3.60	14.68	31.95	37.06
BISC18	2,922	33.55	2.32	21.03	33.97	36.93
BISCA6	2,922	34.41	1.46	25.20	34.62	36.99
C	2,922	34.67	1.13	28.26	34.81	36.92
BISC12	2,922	34.76	0.94	29.24	34.86	36.70

psu = practical salinity units

Source: NRC 2014-TN3078

To investigate the spatial distribution of salinity and salinity differences, the review team examined salinity at two different characteristic periods. One was selected that had positive salinity differences as shown in Figure G-9, and another was selected that had negative salinity differences as shown in Figure G-9. During both of these periods, the salinities along the nearshore north of Turkey Point were lower than those typically found for marine waters, being on the order of 20 psu compared to 35 psu specified at the model's tidal boundary with the Atlantic Ocean (Figure G-10 and Figure G-11). Examination of the salinity differences from the October 3, 2003 results showed a small increase in salinity in southern Biscayne Bay (Figure G-10), with only a small patch of nearshore water predicted to have a salinity increase on the order of +2 psu. In contrast, the results for the October 25, 2003 period showed a small decrease in salinity (Figure G-11), with a small patch of nearshore water predicted to have a salinity decrease on the order of -1.5 psu.

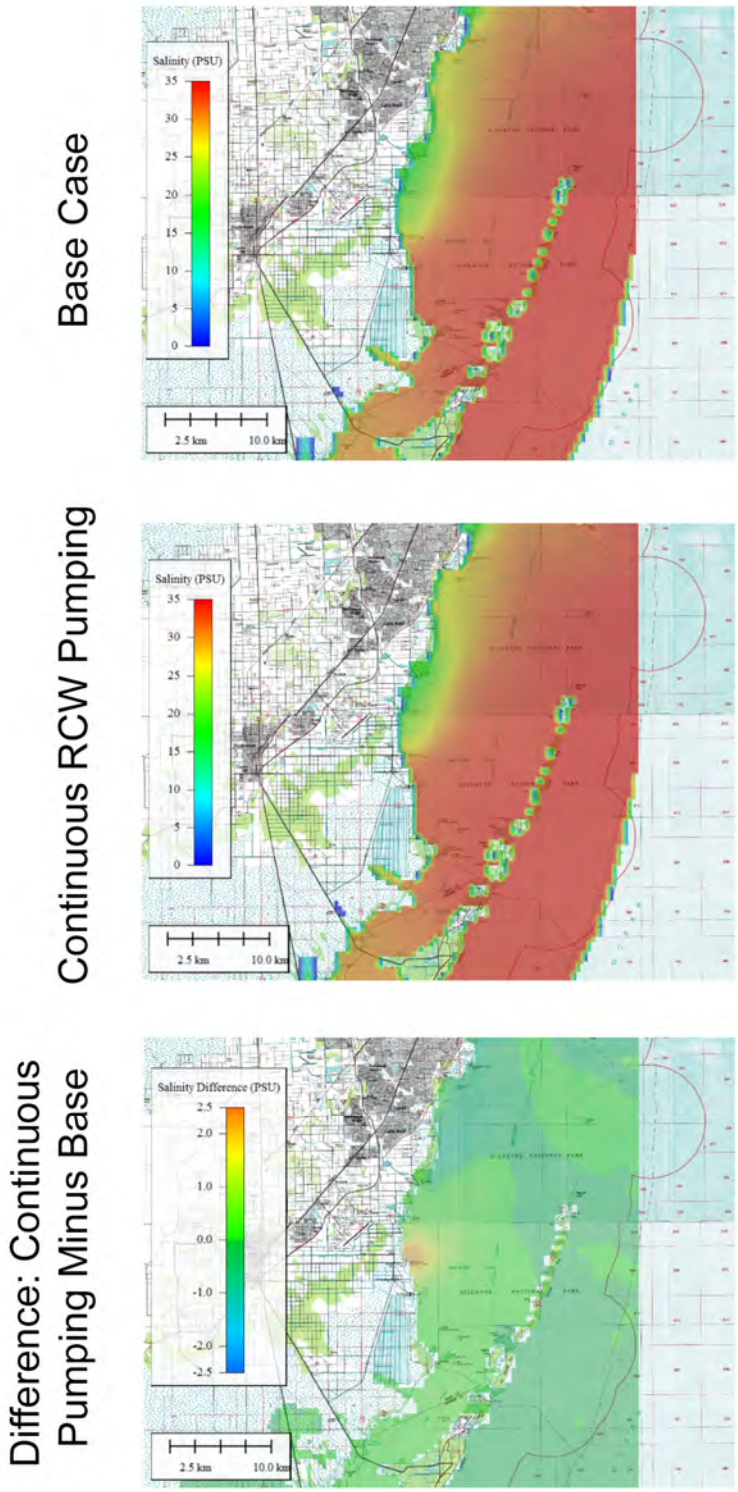

Figure G-10. Surface-Water Salinities at the Time with the Largest Difference North of Turkey Point between the Base Case and Continuous-Pumping Scenario on October 3, 2003. ***Units are psu (practical salinity units).***

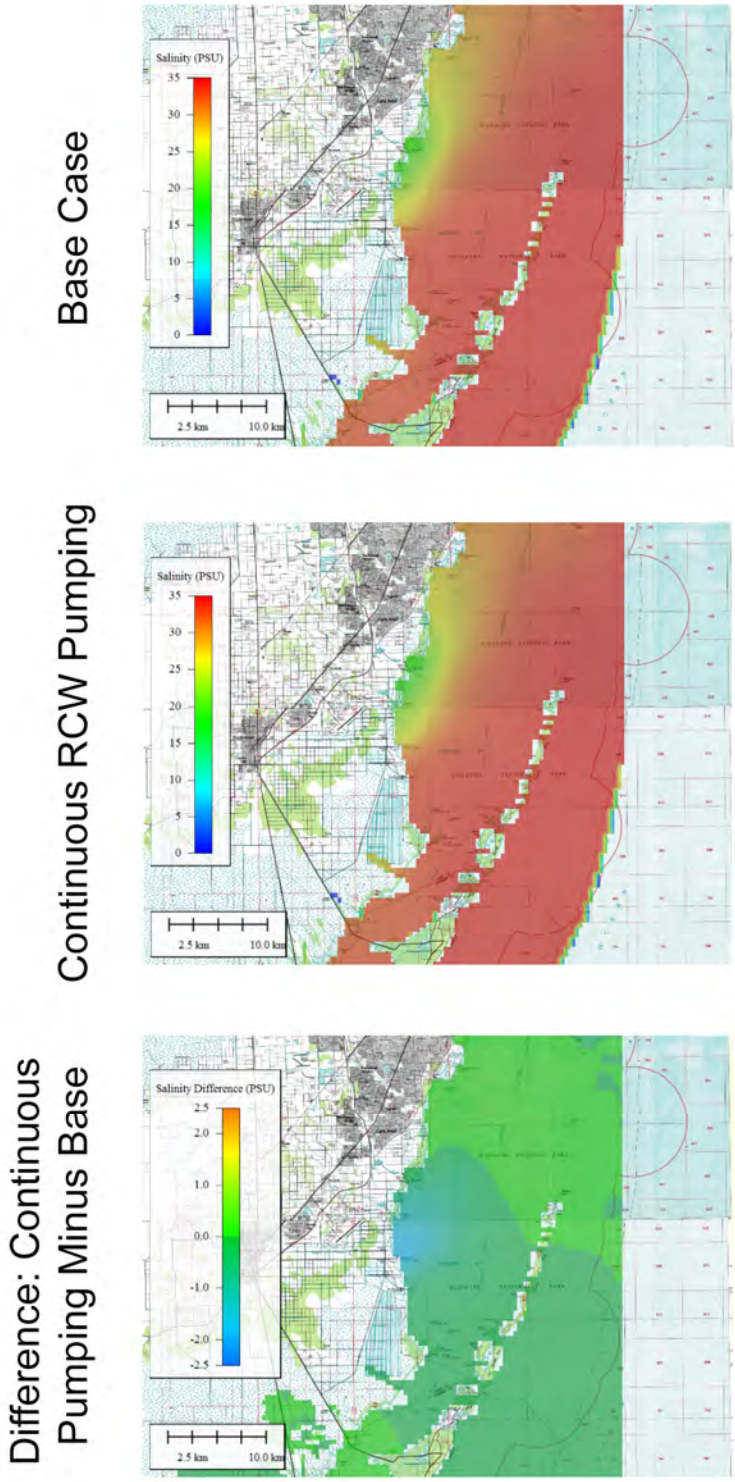

Figure G-11. Surface-Water Salinities at the Time with Largest Decreases North of Turkey Point between the Base Case and Continuous-Pumping Scenario on October 25, 2004. ***Units are psu (practical salinity units).***

G.3.2.3 Summary of Review Team Focused Modeling

To further confirm the review team's understanding of the groundwater hydrodynamics and to consider whether certain actions proposed after the two earlier modeling studies were completed would alter the earlier conclusions documented by the review team in their draft environmental impact statement (EIS, NRC 2015-TN4444), the review team performed a third modeling analysis. This third modeling analysis is discussed in this section and presented in detail by Oostrom and Vail (2016-TN4739).

The review team used the water-salt-energy mode of the STOMP (Subsurface Transport Over Multiple Phases) simulator to perform the simulations (White and Oostrom 2006-TN4808). The applicable governing equations are the component mass-conservation equation for water and salt and the energy conservation equation. The simulator allows for the consideration of density-driven flow and temperature effects caused by the seepage of warm hypersaline water from the unlined cooling-canal system (CCS) into the saline Biscayne aquifer. The review team based the model configuration on an earlier cross-sectional model published by Hughes et al. (2010-TN1545). The two-dimensional (2D) model is 46 km long and extends 35 m vertically. To facilitate simulation of the effects of radial collector well operation, the review team also developed a three-dimensional (3D) model, which represents a 2 km wide extension of the 2D model.

The review team performed a steady-state simulation with a Biscayne Bay hydraulic head of 0.2 m and a west boundary head of 1.05 m to obtain the initial conditions for both the 2D and 3D simulations. The long-term (10,000-year) simulations yielded a typical salt intrusion front, which extends below the CCS. For the subsequent hypersaline water infiltration simulations, the review team used the same boundary conditions as those proposed by Hughes et al. (2010-TN1545) for hydraulic heads and temperature.

The 2D simulations predict several main observations, as follows:

- CCS operation with warm 70 g/L hypersaline water leads to the development of a large subsurface plume.
- Reducing the CCS salt concentration leads to a stable displacement of hypersaline water from the CCS subsurface.
- Increasing the hydraulic head in the L-31E Canal limits westward migration of the hypersaline plume.
- Increasing the west boundary hydraulic head (indicative of increased recharge) results in a compression of the hypersaline plume at the west side of the CCS.
- Decreasing the west boundary hydraulic head (indicative of reduced recharge) has the opposite effect, and leads to additional migration of the hypersaline plume in the western direction.
- During sea-level rise, infiltrating saltwater from the Biscayne Bay pushes the hypersaline water toward the CCS subsurface. Over time, the interface between hypersaline water originating from the CCS and seawater becomes more sharply defined and more vertical.

The 3D simulations predict several main observations, as follows:

- Periodic extraction using the RCW system leads to fluctuating salt concentrations in the radial collector wells.
- During pumping, the salt concentrations initially increase because of advective transport of hypersaline water through the Upper Higher Flow Zone; the salt concentrations then decrease because of the influence of extracted Biscayne Bay saltwater.
- During intervals between periods of pump operation, salt concentrations slightly increase due to diffusion of hypersaline water eastward; the radial collector well salt concentrations do not change significantly from year to year.
- RCW pumping increases the concentration gradients between the hypersaline plume below the CCS and Biscayne Bay saltwater in the upper parts of the aquifer and removes some of the hypersaline water from the Fort Thompson formation; the extracted volumes originate largely from Biscayne Bay (>95 percent); pumping rate reduction (up to 10 percent of maximum) and duration reduction (50 percent) do not considerably influence collector well salt concentrations. This result indicates that the proposed RCW operation with a 86,400 gal/min withdrawal rate over 60 days per year would completely dominate flow and transport adjacent to the RCWs, because reasonable variations in the rate and duration do not considerably influence collector well salt concentrations.
- Boundary condition modifications (i.e., L-31E Canal head and west boundary head increases) applied to the west of the CCS do not influence RCW extraction behavior.
- Seawater rise in Biscayne Bay leads to decreasing RCW saltwater concentration over time because the increasing Biscayne Bay hydraulic head displaces hypersaline water toward the CCS subsurface.
- Operation of remediation wells in the Lower Higher Flow Zone below the Interceptor Ditch does not influence extracted RCW salt concentrations.
- Salt concentrations in the remediation wells are predicted to increase to CCS salt levels within a year of remediation pumping.
- Freshening of the CCS surface water results in reduced RCW salt concentrations with relatively minor (<1 g/L) fluctuations.

Without doubt, some perturbations of the baseline boundary conditions result in significantly altered environmental baselines. However, while the operation of the RCWs would change the incremental impacts of the RCWs on the salinity distribution of the Biscayne aquifer, the alterations would remain at levels that may only be detectable within the immediate vicinity of the RCWs. While the numerical model analysis predicts a slight westward movement of some hypersaline water as a result of the operation of the RCWs, there is no plausible upward impelling force above the RCWs that would result in hypersalinity moving into the Bay as a result of RCW operation. As the review team acknowledged in the EIS Section 2.3.1, when the water-surface elevation in the cooling canals exceeds that in the Bay, the water will follow the gradient of the impelling force into the Bay and may contribute to salinity in the Bay. Both of the above effects also apply for other dissolved constituents in the hypersaline plume, including nutrients and tritium.

Although the primary focus of the modeling reported here is on the incremental effects of the RCWs on the Biscayne Bay, the review team also acknowledges the cumulative impacts of other changes, including those from sea-level rise and possible future regulatory actions. While the scenarios considered in this analysis were designed to be bounding for sea-level rise and possible regulatory actions, they also provide a basis for assessing the cumulative impacts. NRC lacks authority to impose additional mitigation measures regarding surface water conditions subject to State regulation. However, additional mitigation actions proposed by state and county agencies would presumably improve the baseline environment. Because the modeling results predict that the incremental effect of the operation of the RCWs remains minor, the cumulative effects would also remain minor.

The review team's modeling predicts minor localized alterations in salinity distribution due to RCW operation, and these results suggest that the operation of the RCWs is unlikely to interfere with any of the mitigation measures proposed to address the conditions in the cooling canals or the underlying Biscayne aquifer.

G.3.3 Confirmatory Calculations of Potential Upward Migration of Injectate from the Boulder Zone of the Lower Floridan Aquifer

As described in Chapter 5 of the EIS, blowdown and other liquid wastes from the proposed plants would be injected into the Boulder Zone of the Lower Floridan aquifer. Use of reclaimed water as a makeup water source would result in injectate that is buoyant because of its lower density compared to the saline water in the Boulder Zone. FPL conducted performance assessment modeling of potential upward migration of injectate based on the reclaimed water source (FPL 2014-TN4069) in support of the safety and environmental analysis of the proposed plants. The analyses consisted of two main scenarios that were considered feasible:

- Normal Operation Scenario: Upward migration of contaminants through a competent middle confining unit (MCU) under expected hydrogeologic conditions. The normal operation scenario assumes that no system failures occur, e.g., no injection well failure or subsurface loss of confinement beyond the FPL property area.
- Off-Normal Operation and Inadvertent Intrusion Scenario: Bypass of the MCU at a location 2.2 mi from the wastewater injection site through a hypothetical high-conductivity channel or failed well (conduit), where a water-supply well is withdrawing water from the upper Floridan aquifer directly above the MCU conduit. The hypothetical water-supply well provides direct access to the upper Floridan aquifer, bypassing the intermediate confining unit and the Biscayne aquifer.

The FPL analyses were focused on the fate and transport of radionuclides in the injectate, but also demonstrate the potential movement of chemical species in the injectate. The FPL analyses were based on conservative assumptions that would tend to maximize the migration of effluent. The off-normal and inadvertent intrusion scenario "bounded" some other feasible scenarios such as bypass of the MCU at the injection site because it resulted in shorter travel times.

The review team performed a separate confirmatory analysis of these scenarios, which resulted in concentrations of radionuclides at receptor locations similar to those calculated by FPL. The confirmatory analyses were performed through spreadsheet calculations as described below.

G.3.3.1 Normal Operations: Upward Migration through a Competent MCU Layer Scenario

The confirmatory calculation was based on transport equations described by Post et al. (2007-TN4145) and used the parameters shown in Table G-23. The effective vertical hydraulic conductivity of the MCU was based on the harmonic mean of the values determined from testing of core samples from the MCU at the EW-1 exploratory well (FPL 2012-TN1577). The harmonic mean is the most appropriate hydraulic conductivity value for fluid flow perpendicular to a layered system (Freeze and Cherry 1979-TN3275). Lower porosity decreases travel time in the calculations, so a conservatively low porosity value of 0.2 was used. The core analysis results from EW-1 are shown in Table G-24.

Table G-23. Parameters and Results for the Confirmatory Analysis of Upward Migration through a Competent MCU Layer

Parameter	Value	Description
z1[(a)]	-2,900 ft	top of injection zone (referenced to sea level [positive upward])
z2[(b)]	-1,400 ft	bottom of USDW aquifer (referenced to sea level [positive upward])
ρ1[(c)]	62.230 lb_m/ft^3	water density at top of injection zone
ρ2[(d)]	62.792 lb_m/ft^3	water density at bottom of USDW aquifer
h1[(e)]	328.1 ft	piezometer head elevation at top of injection zone
h2[(f)]	188.6 ft	piezometer head elevation at bottom of USDW aquifer
Keff[(g)]	1.82E-07 ft/s	effective hydraulic conductivity
ρa	62.5 lb_m/ft^3	calculated average density over the migration interval
hf1	328.1 ft	fresh water head at top of injection zone
hf2	203.0 ft	fresh water head at bottom of USDW aquifer
Δhf	-125.1 ft	calculated freshwater head difference
Δz	1,500 ft	calculated elevation difference
Δhf/Δz	-0.0834	calculated fresh water gradient
(ρa-ρf)/ρf	0.0045	calculated density gradient
qz	1.24E-3 ft/d	calculated groundwater flux (positive upward)
Θeff[(h)]	0.2	effective porosity along flow path
tt	663 yr	calculated travel time from z1 to z2
Distance in 100 yr	226 ft	calculated vertical migration distance in 100 yr
Linear Velocity	0.00619 ft/d	calculated
C1	1	unit concentration of injectate at top of injection zone
t-half	12.3 yr	tritium half-life
C2	5.92E-17	calculated fraction of unit tritium concentration after 663 yr

Note: flux calculated based on Post et al. (2007-TN4145)
(a) FSAR Fig. 2.4.12-245
(b) FSAR Fig. 2.4.12-246
(c) minimum FSAR value assumed to be freshwater density = 62.2 lb_m/ft^3
(d) 10,000 mg/l TDS @ 20°C
(e) Starr et al. (2001-TN1251), Injection Zone High Value
(f) Starr et al. (2001-TN1251), Upper Monitoring Low Value (wells being purged were not considered)
(g) Approximate maximum MCU Property Estimate
(h) Minimum value from Reese (1994-TN1439)

Source: FPL 2014-TN4069 unless otherwise noted

Results of the "normal operations" scenario confirmed the FPL result that the injectate would move less than 300 ft upward into the MCU over a 100 yr period. The calculations also resulted in radionuclide concentrations at receptor locations similar to those calculated by FPL (2014-TN4069).

Table G-24. Core Analyses from the EW-1 Exploratory Well

Sample Depth (ft bpl)	Vertical Hydraulic Conductivity (cm/sec)	Horizontal Hydraulic Conductivity (cm/sec)	Specific Gravity	Total Porosity (%)
2026.4-2027.0	3.30E-06	3.20E-06	2.71	27.4
2027.0-2027.5	3.70E-04	7.80E-04	2.70	35.0
2029.4-2030.4	1.00E-05	2.80E-05	2.71	33.6
2030.4-2031.3	3.00E-05	1.30E-04	2.71	36.6
2036.2-2036.7	7.60E-05	1.10E-04	2.72	35.5
2036.7-2037.9	NA	NA	NA	NA
2295.2-2296.0	1.90E-04	1.00E-04	2.74	39.5
2296.0-2296.75	8.40E-05	5.90E-04	2.72	37.9
2296.75-2297.5	1.00E-04	1.00E-04	2.72	38.5
2399.9-2400.9	5.40E-04	5.40E-04	2.70	38.7
2576.0-2577.0	1.90E-04	2.50E-04	2.71	41.4
2639.3-2639.7	1.60E-06	8.40E-05	2.69	33.7
2639.7-2640.2	NA	NA	NA	NA
2645.1-2645.5	1.40E-05	6.20E-06	2.70	36.9
2645.5-2646.5	NA	NA	NA	NA
2652.0-2652.8	2.80E-06	4.60E-06	2.71	34.5
2652.8-2653.5	2.30E-06	2.50E-05	2.71	33.2
2675.1-2675.6	2.70E-04	2.90E-04	2.71	39.5
2675.6-2676.1	NA	NA	NA	NA
2676.1-2677.0	1.10E-06	5.30E-04	2.72	43.4
Arith. Mean	**1.18E-04**			
Geom. Mean	**2.86E-05**			
Harmonic Mean	**5.54E-06**			

Source: FPL 2012-TN1577

G.3.3.2 Off-Normal Operation and Inadvertent Intrusion Scenario:

FPL's safety analysis (FPL 2014-TN4069) also considered a case with a hypothetical water-supply well being drilled into the upper Floridan (USDW) aquifer and a simultaneous bypass/failure of the MCU at the same location 2.2 mi from the wastewater injection site. The 2.2 mi distance is based on the nearest privately owned parcel. This scenario makes the off-normal operation assumption that there is a high-permeability connection through the MCU between the injection zone and the upper Floridan aquifer located 2.2 mi from Turkey Point wastewater injection site. This is combined with an inadvertent intrusion scenario that places a water-supply well in the upper Floridan aquifer directly above the conduit through the MCU. The FPL analysis showed that the transit time through the Boulder Zone from the Turkey Point

injection wells to the offsite location 2.2 mi away would be 21 years (FPL 2014-TN4069). The staff's confirmatory calculation showed that at the expected injection rate of 12,460 gpm, and a conservatively low porosity of 0.2, the injectate plume would reach the hypothetical offsite location in 23.5 years.

The safety analysis was conservative in that it did not account for transit time through the MCU and it did not account for dilution of contaminants within the Upper Floridan aquifer. It assumed that 100 percent of the water pumped by the water-supply well would be from the Boulder Zone with no dilution in the APPZ or the Upper Floridan aquifer.

The staff performed a calculation of expected flux through the MCU and dilution in the Upper Floridan aquifer using the maximum MCU hydraulic conductivity from the range of values shown in Table G-24 for the area of the enhanced vertical flow pathway. This calculation assumed a pathway size of 0.3 m^2 to match the approximate size of a failed borehole seal. The results of the leakage calculations for this scenario were an upward velocity of 1,245 m/yr and eventual discharge of 54 gpd of injectate into the Upper Floridan aquifer. It was assumed that this volume of injectate would mix over a width of 10 m and 1 percent of the Upper Floridan aquifer depth before being brought to the surface through a water-supply well. This was based on an Upper Floridan aquifer transmissivity equal to the minimum of the range of values, which would minimize the calculated dilution factor. This very conservative mixing scenario results in a dilution factor of 0.93, meaning that 93 percent of the water from the well would be injectate. This calculation represents a conservative case in multiple ways, including the assumption that a water-supply well would be placed such that it would exclusively be pumping water from the assumed mixing zone directly above a high-conductivity conduit from the injection zone. An upward velocity of 262 ft/yr was estimated by Maliva et al. (2007-TN1483) for an enhanced vertical flow feature at an injection site in Palm Beach County compared to the 1,245 ft/yr upward velocity from this analysis.

Table G-25. Parameters and Results for the Confirmatory Analysis of Upward Migration Through a Conduit in the MCU and into the Upper Floridan Aquifer

Parameter	Value	Description
z1[(a)]	-2,900 ft	top of injection zone (referenced to sea level [positive upward])
z2[(b)]	-1,400 ft	bottom of USDW aquifer (referenced to sea level [positive upward])
ρ1[(c)]	62.230 lb_m/ft^3	water density at top of injection zone
ρ2[(d)]	62.792 lb_m/ft^3	water density at bottom of USDW aquifer
h1[(e)]	328.1 ft	piezometer head elevation at top of injection zone
h2[(f)]	188.6 ft	piezometer head elevation at bottom of USDW aquifer
Keff[(g)]	3.28E-04 ft/s	effective hydraulic conductivity
ρa	62.5 lb_m/ft^3	calculated average density over the migration interval
hf1	328.1 ft	fresh water head at top of injection zone
hf2	203.0 ft	fresh water head at bottom of USDW aquifer
Δhf	-125.1 ft	calculated freshwater head difference
Δz	1,500 ft	calculated elevation difference
Δhf/Δz	-0.0834	calculated fresh water gradient

Table G-25. (contd)

Parameter	Value	Description
(ρa-ρf)/ρf	0.0045	calculated density gradient
qz	2.24 ft/d	calculated groundwater flux (positive upward)
Θeff[h]	0.2	effective porosity along flow path
tt	134.2 d	calculated travel time from z1 to z2
Linear Velocity	11.18 ft/d	calculated
C1	1	unit concentration of injectate at top of injection zone
t-half	12.3 yr	tritium half-life
C2	0.980	calculated fraction of unit tritium concentration at discharge to USDW aquifer after decay
Discharge Area	0.98 ft^2	assumed failed well (leakage) area through MCU
Discharge Rate	0.67 ft^2/d (54 gal/d)	volumetric discharge rate of injectate through failed well
UFA Mixing Width	32.81 ft	width of UFA over which MCU discharge is mixed
UFA Discharge	4.97 ft^3/d	horizontal volumetric discharge over depth of UFA based on minimum UFA transmissivity and gradient
Mixing Fraction	0.010	assumed fraction of UFA over which MCU discharge is mixed
Dilution Factor	0.931	MCU discharge/(MCU discharge + Mixing Fraction*UFA discharge)

Note: flux calculated based on Post et al. (2007-TN4145)
(a) FSAR Fig. 2.4.12-245
(b) FSAR Fig. 2.4.12-246
(c) minimum FSAR value assumed to be freshwater density = 62.2 lb_m/ft^3
(d) 10,000 mg/L TDS @ 20°C
(e) Starr et al. (2001-TN1251), Injection Zone High Value
(f) Starr et al. (2001-TN1251), Upper Monitoring Low Value (wells being purged were not considered)
(g) Approximate maximum MCU Property Estimate
(h) Minimum value from Reese (1994-TN1439)

Source: FPL 2014-TN4069 unless otherwise noted.

G.4 SAMDA Sensitivity Evaluation and Supporting Documentation

G.4.1 Introduction

FPL performed a SAMDA evaluation and determined that none of the severe accident design alternatives (SAMDAs) can be justified to further reduce the risk of severe accidents. NRC's review of the FPL submittal is detailed in Section 5.11.3. The SAMDA evaluation by FPL and the confirmatory evaluation by NRC identified the self-actuating containment isolation valves design alternative as the only design alternative with a value comparable to the maximum attainable benefit for the Turkey Point site. The results of the FPL analysis indicate that the maximum attainable benefit if the total risk for the AP1000 at the Turkey Point site were reduced to zero would have a value of about $55,513. The cost of implementing the self-actuating containment isolation valves design alternative is estimated to be $33,000. Thus, this SAMDA would be potentially cost-beneficial. To evaluate the maximum benefit of implementing the self-actuating containment isolation for the risk that this SAMDA would actually affect the Containment Isolation severe accident release category of Table 5-18 would be eliminated by this SAMDA and its contribution would be added to the Intact Containment release category. This would result in a benefit associated with this SAMDA of approximately $994. As was

applied for the NRC staff confirmatory calculations, the NRC staff used the population and the property value estimates from the latest census data of 2010 and the results of case runs made by using the latest version of SECPOP 2010 software (NRC 2003-TN3152; Bixler et al. 2003-TN3636). This information was consistent with the estimated population and property values used in the FPL evaluation.

With the Commission's ruling regarding two MELCOR Accident Consequence Code System (MACCS) decontamination input parameter values as presented in the severe accident mitigation alternative (SAMA) ruling of CLI-16-07 (NRC 2016-TN4631), the staff determined that a sensitivity study would be appropriate for the Turkey Point Units 6 and 7 COL SAMDA assessments. Two of the MACCS input parameters are related to decontamination cost and duration. The basis, results, and conclusions for this SAMDA sensitivity analyses are documented here.

G.4.2 Basis for Sensitivity Analysis

The two parameters that are considered for the sensitivity analysis are the decontamination time (TIMDEC) and the cost for decontamination of non-farmland (CDNFRM), as discussed in CLI-16-07. CDNFRM input values are usually taken from NUREG-1150 (NRC 1990-TN525) and adjusted for their present values using the Consumer Price Index (CPI) from 1986. The TIMDEC input value defines the time required to complete decontamination to a specified degree or level. The longer the TIMDEC value, the greater the dose that would be received by decontamination workers, and the longer duration that residents would be away from their homes. Both of these outcomes would entail higher costs to be assessed in the SAMDA analysis. TIMDEC input values and the associated decontamination levels are also taken from NUREG-1150.

The Commission in CLI-16-07 concluded that these two MACCS input parameters for decontamination are not fully vetted and could be uncertain; therefore, sensitivity analyses should to be performed to ensure that the conclusion of a SAMA evaluation would not be affected by any such uncertainties. CLI 16-07 provides a detailed account of the technical basis and specifies the reasonably high values for these two parameters for the purpose of sensitivity evaluation. With the Commission's ruling regarding this matter, the NRC staff used the same basis as CLI-16-07, to perform SAMDA sensitivity analysis and compare the results to those reported in FPL's ER (FPL 2014-TN4058).

G.4.3 Sensitivity Analysis and the Results

Two decontamination levels are considered for evaluating the risks of the postulated accidents. An effectiveness factor (effective dose reduction factor) is associated with each decontamination level. For example, a dose reduction factor of 3 means that the resulting population dose at that location would be reduced to one-third of what it would be without decontamination. The two values for decontamination effectiveness (DF) were left unchanged at 3 and 15. The variable TIMDEC, which defines the time required for completion of each of the DF levels, was changed to 3.15E+07 seconds (i.e., the maximum allowable duration of 1 year in MACCS input) for both DF levels.

The CDNFRM input parameter defines the cost (on a per person basis) of decontaminating non-farmland to a specified level. To obtain the cost of decontaminating non-farmland areas, the code multiplies the specified CDNFRM parameter by the population residing in the areas ("grid elements") that require decontamination. In footnote 122 of CLI 16-07, the intervenor asserts that the input values for CDNFRM range from $15,422 to $23,952 per person for light decontamination (level 3), and from $71,255 to $112,856 per person for heavy decontamination (level 15). Based on this information and the Commission's recommendation, the sensitivity analysis was performed using CDNFRM values of $24,000 and $100,000 for decontamination levels of 3 and 15, respectively.

The results of the sensitivity analysis in comparison to the base case runs are shown in Table G-26 for the undiscounted offsite cost, which includes the increase decontamination cost. The results in Table G-26 show the effect of the TIMDEC and CDNFRM sensitivity analysis. The table shows that for the sensitivity case, the undiscounted offsite cost can increase by a factor of about 2. Table G-27 shows the maximum attainable benefit and the benefit associated with implementing the self-actuating containment isolation valves design alternative for two cases of 7% and 3% annual discount rate. This table shows the benefit of implementing the self-actuating containment isolation valves design alternative can increase by a factor of about 2 for the sensitivity analysis at both the 3% and 7% annual discount rates.

Table G-26. Undiscounted Offsite Cost for the Base Case and the Sensitivity Cases

Undiscounted Offsite Cost	Present Dollar Value
Base Case as reported in ER	1346.2[(a)]
Sensitivity (TIMDEC of one year and CDNFRM of $24000 for $100,000 for Decontamination Levels 3 and 15)	2890.27

(a) ER value of $636 was multiplied by the ratio of the total CDF from both external and internal hazards over CDF of internal hazards only

Table G-27. Maximum Attainable Benefit and the Benefit of Implementing the Most Cost Beneficial SAMDA for the Base and Sensitivity Cases

	Maximum Attainable Benefit		Benefit of Implementing Self-Actuating Containment Isolation Valves SAMDA	
Case Studies	7% Discount Rate	3% Discount Rate	7% Discount Rate	3% Discount Rate
Base Case FPL-ER	$ 55,513	$ 123,602	$ 994	$ 1,965[(a)]
Sensitivity Case	$ 77,588	$ 167,220	$ 1,965	$ 3,896

(a) This value was estimated based on information from FPL's MACCS calculation (FPL 2014-TN3660) but it is not specifically reported in the ER.

G.4.4 Conclusion

The cost of implementing the self-actuating containment isolation valves design alternative for the AP1000 reactor design is estimated to be $33,000 (see Table 5-22). A sensitivity analysis was performed using conservative values for two MACCS decontamination input parameter values (i.e., TIMDEC and CDNFRM). This analysis showed that the maximum benefit from implementing this particular SAMDA is less than $3,896, which is below the $33,000 cost of this

particular SAMDA. This reconfirms the staff's conclusion that no cost–beneficial SAMDAs remains valid for the AP1000 reactor design located at the Turkey Point site.

G.5 References

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APPENDIX H

AUTHORIZATIONS, PERMITS, AND CERTIFICATIONS

APPENDIX H

AUTHORIZATIONS, PERMITS, AND CERTIFICATIONS

This appendix contains a list of environmental-related authorizations, permits, and certifications potentially required by Florida Power and Light Company (FPL) from Federal, State, regional, and local agencies related to the combined construction permits and operating licenses (combined licenses or COLs) for proposed Turkey Point Units 6 and 7 in Miami-Dade County, Florida. Table H-1 is based on Table 1.2-1 of the Environmental Report (ER), Revision 6 (FPL 2014-TN4058), submitted on October 29, 2014 by FPL to the U.S. Nuclear Regulatory Commission (NRC).

Table H-1. Federal, State, and Local Environmental Permits and Authorizations

Jurisdictional Agency	Authority, Law, or Regulation	Description of Requirement	License/Permit and/or Applicability[a]	Date of Application and/or Date Issued	Activity Covered
Federal					
NRC	10 CFR Part 30	By-product license	(3)	Application submitted 06/30/2009	Possession of by-product material.
NRC	10 CFR Part 40	Source material license	(3)	Application submitted 06/30/2009	Possession of source material.
NRC	10 CFR Part 50	Licensing of nuclear power plant	(3)	Application submitted 06/30/2009	Approval for construction and/or operation of nuclear power plant.
NRC	10 CFR Part 51, 10 CFR Part 52	NRC approval of an environmental report	(2)	Application submitted 06/30/2009	Evaluation of environmental impacts from construction and operation of a nuclear power plant.
NRC	10 CFR Part 52	COL	(3)	Application submitted 06/30/2009	Safety review of the nuclear power plant site.
NRC	10 CFR Part 61	Licensing requirements for land disposal of radioactive wastes	(2)	Application submitted 06/30/2009	Land disposal of radioactive waste that contains by-product source and special nuclear material.
NRC	10 CFR Part 70	Special nuclear material license	(3)	Application submitted 06/30/2009	Possession of special nuclear material.
NRC	10 CFR Part 71	Packaging and transportation of radioactive material	(3)	Application submitted 06/30/2009	Packaging and transportation of licensed radioactive material.
NRC	10 CFR 72	General License for Storage of Spent Fuel at Power Reactor Sites	(3)	Authorized if Combined License Issued	Storage of power reactor spent fuel and other associated radioactive materials in an independent spent fuel storage installation

Table H-1. (contd)

Jurisdictional Agency	Authority, Law, or Regulation	Description of Requirement	License/Permit and/or Applicability[a]	Date of Application and/or Date Issued	Activity Covered
Federal					
DOE	Nuclear Waste Policy Act (42 U.S.C. 10101 et seq.) and 10 CFR Part 961	Spent fuel contract	No. DE-CR01-09RW9012 (Unit 6) No. DE-CR01-09RW09013 (Unit 7) (3)	11/14/2008 11/14/2008	Disposal of spent nuclear fuel.
USACE	Clean Water Act of 1976 33 U.S.C. section 1344	Section 404 Permit	(1)	06/30/2009, modified 05/07/2010	Discharge of dredge and fill materials into waters of the United States.
USACE (request is made through SFWMD)	Rivers and Harbors Act of 1899/33 U.S.C. section 14	Section 408 Permit	(1)	Application date to be determined	Public works alteration request for facilities that are proposed on, over, under, or adjacent to a canal or levee constructed by the USACE and operated and maintained by SFWMD.
USACE	Rivers and Harbors Appropriations Act of 1899 (33 U.S.C. section 401 et seq.)	Section 10 — Rivers and Harbors Act Permit	(1)	Application submitted 06/30/2009	Excavation or filling within navigable waters of the United States.
USACE	Secretary of the Army	Modified water deliveries to Everglades National Park	DACW-17-3-08-0006 Amendment No.1 Amendment No. 2 Amendment No. 3 Amendment No. 4 (each Amendment extended the license agreement for an additional year, currently expires 6/20/2013)	06/20/2008 06/20/2009 06/20/2010 06/20/2011 06/27/2012 Renewal application submittal date to be determined	Use of Government-owned lands for the purpose of onsite investigations in support of a Phase 1 ESA, Wetland delineation, preparation of legal description and soil borings.

Table H-1. (contd)

Jurisdictional Agency	Authority, Law, or Regulation	Description of Requirement	License/Permit and/or Applicability[a]	Date of Application and/or Date Issued	Activity Covered
Federal Aviation Agency.	14 CFR Part 77 - Safe, Efficient Use, and Preservation of Navigable Airspace	FAA Obstruction Permit for Unit 6 Containment Building	2012-ASO-7115-OE	08/24/2012	FAA Obstruction Permit for Unit 6 Containment Building.
Federal Aviation Agency	14 CFR Part 77 - Safe, Efficient Use, and Preservation of Navigable Airspace	FAA Obstruction Permit for Unit 7 Containment Building	2012-ASO-7116-OE	08/24/2012	FAA Obstruction Permit for Unit 7 Containment Building.
Department of the Interior	RE-DO-53	Temporary Construction Easement	EVER SUP 08-38	07/28/2008	Provide access to delineate wetland boundaries within the proposed utility line ROW relocation in Everglades National Park.
Department of the Interior	RE-DO-53	Temporary Construction Easement	EVER SUP 08-39	07/28/2008	Provide access to conduct visual and pedestrian surveys for Phase I environmental assessment within the proposed utility line ROW relocation in Everglades National Park.
FWS	16 U.S.C. 1539(a)(1)(A); 50 CFR Parts 13, 17	Endangered species permit to take American crocodile during monitoring	TE092945-2 (1)	01/29/2010	Provides authorization to take (capture, examine, weigh, sex, collect tissue samples, mark, radio-tag, radio-track, relocate, release) endangered American crocodile individuals during population monitoring.

Table H-1. (contd)

Jurisdictional Agency	Authority, Law, or Regulation	Description of Requirement	License/Permit and/or Applicability[a]	Date of Application and/or Date Issued	Activity Covered
FWS	16 U.S.C. 703-712	Special purpose salvage permit, migratory birds	MB697722-0 Amendment (1)	04/01/2012	Provides authorization to: salvage dead migratory birds, abandoned nests, and addled eggs after nesting season; dead bald or golden eagles; and possess live migratory birds for transport to permitted rehabilitator.
State of Florida Authorizations					
FDEP, Siting Board	FS 403.501-.518	Power plant site certification[b]	(2)	06/30/2009, Amendment submittals 05/07/2010 11/12/2012 12/21/2012 Errata submitted 03/22/2013 Final Conditions of Certification issued 5/19/2014 Remanded to FSB[b] 4/20/2016	Construction and operation of a power plant with more than 75 MW of steam generated power and associated facilities.
FDEP, USEPA Region IV review	FAC 62-621	NPDES storm water operations permit for industrial activities	(3)	06/30/2009	Operation of an industrial facility.
FDEP	Chapter 403 FS	Exploratory well construction permit	0293962-001-UC (1)	05/05/2010	Allows for the construction of the exploratory well and dual-zone monitor well.

Table H-1. (contd)

Jurisdictional Agency	Authority, Law, or Regulation	Description of Requirement	License/Permit and/or Applicability[(a)]	Date of Application and/or Date Issued	Activity Covered
FDEP	Chapter 403 FS	UIC well construction permit	(1)	07/29/2013. Final Conditions of Certification issued May 19, 2014	Allows for the conversion of the exploratory well to an injection well and perform operational testing for up to 2 years.
FDEP	Chapter 403 FS	UIC well construction permit	(1)	Application date to be determined. A decision to move forward and submit the permit application will be made at a later date.	Allows for the construction and operational testing of additional injection and dual zone monitoring wells.
FDEP	Chapter 403 FS	Class I well operation permit	(3)	Application date to be determined. A decision to move forward and submit the permit application will be made at a later date.	Allows for the operation of the injection wells. This permit must be renewed every 5 years.
FDEP, USEPA Region IV review	FAC 62-212	Prevention of significant deterioration construction permit	PSD-FL-409 (1)	05/28/2010. final Conditions of Certification issued May 19, 2014	Construction and operation of facilities that generate air emissions.
FDEP, USEPA Region IV review	403.0885 FS	Modification of Industrial Wastewater Treatment Facility permit	FL0001562 (2)	06/30/2009. Final Conditions of Certification issued May 19, 2014	Construction of Units 6 and 7 within the industrial wastewater facility.
FDEP/USEPA	FAC 62-25, 62-40	NPDES construction storm water permit	(1)	To be submitted 2 days prior to beginning construction Final Conditions of Certification issued May 19, 2014	Construction of any facility that disturbs 1 acre or more.

Table H-1. (contd)

Jurisdictional Agency	Authority, Law, or Regulation	Description of Requirement	License/Permit and/or Applicability[a]	Date of Application and/or Date Issued	Activity Covered
FDEP	403.087, FS and FAC 62-4, 62-520, 62-522, 62-528, 62-550, 62-600, 62-601	Operation of Class V, Group 3 domestic wastewater injection (gravity flow) well	0127512-006-UO (3)	08/14/2012. Final Conditions of Certification issued May 19, 2014	Operation of IW-1.
FDEP	403, FS and FAC 62-600, 62-601, 62-602, 62-620, 62-640, 62-699	Operation of domestic wastewater treatment facility	FLA013612- 003-DW3P (3)	09/28/2010. Final Conditions of Certification issued May 19, 2014	Operation of Turkey Point Power Plant wastewater treatment facility.
FDEP	FAC 62-213	Title V Operations Permit	0250003-010-AV (3)	01/01/2009. Final Conditions of Certification issued May 19, 2014	Operation of facilities that generate air emissions.
FDEP	FAC 62-213	Title V Operations Permit	0250003-021-AV (3)	Effective 01/01/2014. Final Conditions of Certification issued May 19, 2014	Operation of facilities that generate air emissions.
FDEP	403 FS	Nuclear Replacement of Emergency Diesel Engines	0250003-020-AC	04/02/2013	Replacement of diesel engines.
FDEP, South Florida Water Management District	FAC 40B-3	Well Construction Permit	13-59-3795 to 13-59-3814 (2)	01/14/2008. Final Conditions of Certification issued May 19, 2014	Construct, repair, modify, or abandon a well.
South Florida Water Management District	FAC 40E-3	Well Abandonment Permit	#SF092308E, #SF092308F, #SF092308G, #SF092308H (2)	05/05/2009 Cancelled	Well abandonment permits.
State of Florida	FAC 40E-3	Well Abandonment Permit	13-59-2241 through 13-59-2259 (2)	02/19/2008	Application to construct, repair, modify, or abandon well.
FWCC	FAC 68A-9.002, 68A-27.005	Removal of nests and ospreys	LSNR-1100026 (1)	02/02/2011	Removal and replacement of inactive nests of ospreys and other migratory birds.

Table H-1. (contd)

Jurisdictional Agency	Authority, Law, or Regulation	Description of Requirement	License/Permit and/or Applicability[a]	Date of Application and/or Date Issued	Activity Covered
FWCC	FAC 68A-9.002, 68A-9.025, 68A-27	Carcass Salvage Permit	LSSC-11-00021 (1)	02/02/2011	Salvage, mount, and display wildlife carcasses upon encounter for educational and scientific purposes.
Florida Division of Historical Resources (SHPO)	National Historic Preservation Act (54 U.S.C. 300101 et seq.) and 36 CFR 800	Cultural Resources Review and Consultation	(1), (2), and (3)	07/28/2010. Final Conditions of Certification issued May 19, 2014	Identification, description, and evaluations of cultural resources on and in the site vicinity with the potential to be impacted by construction and operations.
Other States Authorizations					
Utah Department of Environmental Quality Division of Radiation Control	R313-26 of the Utah Radiation Control Rules	Revision of existing general site access permit	(3)	Annual authorization	Transport of radioactive materials into the State of Utah.
Tennessee Department of Environment and Conservation Division of Radiological Health	TDEC Rule 1200-2-10.32	Revision of existing Tennessee radioactive waste license-for-delivery	(3)	Annual authorization	Transport of radioactive waste into the State of Tennessee.

Table H-1. (contd)

Jurisdictional Agency	Authority, Law, or Regulation	Description of Requirement	License/Permit and/or Applicability[a]	Date of Application and/or Date Issued	Activity Covered
Local Authorizations					
Miami-Dade County	Chapter 163 FS; Miami-Dade County Comprehensive Plan and adopted regulations and Miami-Dade County Ordinances, Chapter 33	Land use and zoning approval (unusual use approval)	Miami-Dade County Board of County Commissioners Resolution Z-56-07 (1)	12/24/2007	Unusual use (zoning approval) to permit a nuclear power plant (atomic reactors) and ancillary structures and equipment.
Miami-Dade County	Chapter 163 FS; Miami-Dade County Comprehensive Plan and adopted regulations and Miami-Dade County Ordinances, Chapter 33	Land use and zoning approval (unusual use approval)	Miami-Dade County Board of County Commissioners Resolution Z-1-13 (1)	01/13/2013	Unusual use (zoning approval) to permit a reclaimed water treatment facility, radial collector wells, and a parking area associated with Turkey Point Units 6 and 7.
Miami-Dade County	Chapter 163 FS; Miami-Dade County Comprehensive Development Master Plan and adopted regulations	Comprehensive Development Master Plan text amendment	(1)	Application submitted 10/31/2008; withdrawn 03/05/2010	Excavation for fill source.
Miami-Dade County	Chapter 163 FS; Miami-Dade County Comprehensive Development Master Plan and adopted regulations	Comprehensive Development Master Plan text amendment	(1)	04/30/2009	Temporary access roads.
Miami-Dade County	Miami-Dade County Ordinances	IW6 permit (industrial well field) for site investigation	Permit Numbers: 13-59-2241 through 13-59-2259 (1)	02/19/2008	Land use — nonresidential, within major well field protection areas not served by sanitary sewers.

Table H-1. (contd)

Jurisdictional Agency	Authority, Law, or Regulation	Description of Requirement	License/Permit and/or Applicability[a]	Date of Application and/or Date Issued	Activity Covered
Miami-Dade County Health Department	Chapter 373 FS	Water well construction permits	13-59-2241 to 13-59-2259 13-59-3795 to 13-59-3814 (1)	02/19/2008 01/14/2008	Well installation for hydrologic investigation.
Miami-Dade County	Miami-Dade County Code Chapter 24	Domestic wastewater annual operating permit	DWO-000010-20130-2014 (2)	04/15/2013	Stabilization treatment facility.
Miami-Dade County	Miami-Dade County Code Chapter 24	Operation of pollution control facility permit	IW5-006229-2012-2013 (2)	05/01/2013	Operation of fleet vehicle maintenance facility that generates waste oil, coolant, and used batteries with a solvent wash tank and served by septic tank.
State of Florida	Department of Agriculture	Burn Permit	1373498 (2)	01/24/2011	Onsite combustion of construction debris. Annual permit issued.
Miami-Dade County	Miami-Dade County Ordinances, Section 24-35	IW5 Permit (or waiver)	IW-000016-2012/2013	06/01/2013	Hazardous materials or hazardous waste-large user or generator. Hazardous waste permit issued 10/01/2008.
Miami-Dade County	Miami-Dade County Code Chapter 24	Stratospheric Ozone Protection Annual Operations Permit	APCF-001747-2012-2013 (1)	07/01/2012	Use of refrigerants R-12, R-22, R-502 for Robinair Recovery Units, Models 25200, 25200A, 25200B.

Table H-1. (contd)

Jurisdictional Agency	Authority, Law, or Regulation	Description of Requirement	License/Permit and/or Applicability[a]	Date of Application and/or Date Issued	Activity Covered
Miami-Dade County	Miami-Dade County Code Chapter 24	Industrial Waste Annual Operations Permit	IW-000003-2013-2014 (2)	06/01/2013	Onsite disposal of Class III industrial solid waste consisting of earth and earth-like products, concrete, rock, bricks, and land clearing debris.
Miami-Dade County	Miami-Dade County Ordinance 89-104	Marine Facilities Annual Operations Permit	MOP-000072-2013/2013 (2)	10/01/2012	Operation of 1 wet slip, 1 dry slip, 2 commercial vessels.
Miami-Dade County	Miami-Dade County Ordinances, Chapter 8	Turkey Point Units 6 and 7 Site Investigation-Construction trailers	2008-026502	01/29/2008	Construction Trailers.
Miami-Dade County	Miami-Dade County Ordinances, Chapter 8	Turkey Point Units 6 and 7 Exploratory Well-Electrical permits	2011-028574 2011-031469	03/28/2011 04/13/2011	Exploratory well electrical permit.
State of Florida; Miami-Dade County	Miami-Dade County Ordinances, Chapter 8; FAC 64E-6	Turkey Point Units 6 and 7 Exploratory Well-Construction Trailer permits	2011-031471 2011-031529 2011-031532 13-SC-1307746 2011-031470 2011-031530 2011-031531 13-SC-1307751	04/13/2011 04/13/2011 04/13/2011 03/18/2011 04/13/2011 04/13/2011 04/13/2011 03/18/2011	Exploratory well construction trailer permit.
State of Florida	FAC 40D-3	Turkey Point Units 6 and 7 Exploratory Well and Dual Zone Monitoring Well-Pad monitor well permits	13-59-6664-71	04/14/2011	Exploratory well pad monitor well permits.
South Florida Water Management District	FAC 40D-3	Turkey Point Units 6 and 7 Exploratory and Dual Zone Monitoring Well-Pad monitoring well abandonment	13-59-8020 to 8027	07/24/2012	Pad monitor wells abandonment permit.

Table H-1. (contd)

Jurisdictional Agency	Authority, Law, or Regulation	Description of Requirement	License/Permit and/or Applicability[(a)]	Date of Application and/or Date Issued	Activity Covered
Miami-Dade County	Miami-Dade County Ordinances, Chapter 33	Unusual Use Resolution	Resolution Z-56-07	12/24/2007	Unusual use resolution.
Miami-Dade County	Not available	Fencing permit around EW-1 and DZMW-1	2012059049	09/06/2012	
South Florida Water Management District	Chapter 373 FS	Water well construction permits	SF092308A-SF092308D SF123008A-SF123008E	9/23/2008 12/23/2008	Pump test for test wells.

(a) Applicability of the license or permit to the project activity type, i.e., (1) activities not requiring a COL, (2) construction activities requiring a COL, and (3) plant operation activities.

(b) Pursuant to the Florida Electrical Power Plant Siting Act all State, regional and local permits, except for certain local land use and zoning approvals and certain State issued licenses required under Federally delegated or approved permit programs, are covered under a single "Certification". Because the Certification is the sole license of the State and any agency required for construction and operation of the proposed electrical power plant, it is not necessary to apply for permits individually. *On June 30, 2009, FPL submitted a Site Certification Application (SCA) to the State of Florida Department of Environmental Protection for the proposed Turkey Point Units 6 and 7 and ancillary facilities (FPL 2010-TN1231). The SCA process provides a Certification that encompasses all licenses and permits needed for affected Florida State, regional, and local agencies. It also includes any regulatory activity that would be applicable under these agencies' regulations for proposed Turkey Point Units 6 and 7 (FDEP 2013-TN2629). On May 19, 2014, the State of Florida issued final Conditions of Certification to FPL authorizing construction, operation, and maintenance of proposed Turkey Point Units 6 and 7 and associated facilities (State of Florida 2014-TN3637). The final Conditions of Certification issued are binding and subject to the requirements listed in State of Florida 2014(TN3637). The NRC staff is aware that on April 20, 2016, a Florida court issued an opinion in which it ruled that the Florida Siting Board should have considered whether to require FPL to bury a portion of the transmission lines, and that the record was inadequate to support certain mitigation measures associated with transmission lines in the East Everglades. [State of Florida 2016-TN4781] Although the opinion remands the Conditions of Certification to the Florida Siting Board for consideration of the possibility of burying a portion of the transmission lines and reconsideration of the specified mitigation measures, the NRC staff understands that the court's opinion is not yet final as of this writing (October 3, 2016). Accordingly, for the purposes of the FEIS evaluation of impacts, the NRC staff considers the transmission line route and conditions reviewed and approved by the Florida Siting Board as the most current information regarding the transmission line and associated potential mitigation measures. Even if the Conditions of Certification are revisited, the NRC staff considers it reasonable to expect that Conditions of Certification similar to or no less effective than those originally issued will be in place before construction and operation of the proposed units begins.*

CFR = *Code of Federal Regulations*.
DOE = U.S. Department of Energy.
ESA = Endangered Species Act of 1973, as amended.
FAC = Florida Administrative Code.
FS = Florida Statute.
FAA = Federal Aviation Administration.
FDEP = Florida Department of Environmental Protection.
FWCC = Florida Fish and Wildlife Conservation Commission.
FWS = U.S. Fish and Wildlife Service.
IW = Industrial Well or Industrial Waste
MW = Megawatt.
NPDES = National Pollutant Discharge Elimination System.
NRC = U.S. Nuclear Regulatory Commission.
ROW = Right of Way
TDEC = Tennessee Department of Environment and Conservation.

Table H-1. (contd)

Jurisdictional Agency	Authority, Law, or Regulation	Description of Requirement	License/Permit and/or Applicability[a]	Date of Application and/or Date Issued	Activity Covered

TP = Turkey Point.
UIC = Underground Injection Control.
USACE = U.S. Army Corps of Engineers.
U.S.C. = United States Code.
USEPA = U.S. Environmental Protection Agency.

APPENDIX I

THE EFFECT OF CLIMATE CHANGE ON THE EVALUATION OF ENVIRONMENTAL IMPACTS

APPENDIX I

THE EFFECT OF CLIMATE CHANGE ON THE EVALUATION OF ENVIRONMENTAL IMPACTS

The review team has determined that it is reasonably foreseeable that climate change may substantially alter the affected environment described in Chapter 2 of this environmental impact statement (EIS). Climate change is a global phenomenon that the construction and operation of the proposed two-unit plant will not appreciably alter. However, climate change will provide a new environment that the operation of the proposed units will affect.

The objective of this appendix is to document the review team's consideration of the potential changes in impacts that may occur as a result of the new future environment. This appendix is not intended to be a comprehensive climate change assessment for the affected region. It documents the review team's qualitative determination of the likely changes in the impacts described in Chapter 5, if the environment is altered in a manner consistent with the predictions in current climate change literature.

The Nuclear Regulatory Commission staff documents the review of the safety of the plant in the Safety Evaluation Report (SER) expected to be published in November 2016 (NRC 2016-TN4619). If the NRC grants the FPL COL application, the staff will inspect and otherwise moniter plant construction and operation. This safety oversight process includes collection and analysis of information regarding changes in the severity or frequency of natural hazards, such as flooding from storm surge and sea level rise, as discussed in SECY-15-0137 (NRC 2015-TN4731). When warranted, the NRC can request licensee study and analysis of changing natural hazards, and can impose additional design or operation requirements to address those changing hazards.

In this appendix, the review team assessed the potential effects of climate change on its evaluation of the environmental impacts of the proposed action. The results of this assessment are presented below in three sections: (1) description of the assessment process, (2) potential climate change impacts in the region, and (3) assessment summary. The appendix also discusses the USACE's consideration of climate change in the context of the USACE Public Interest Review.

I.1 Description of the Assessment Process

As part of its National Environmental Policy Act (42 U.S.C. 4321 et seq.) (TN661) review, the U.S. Nuclear Regulatory Commission (NRC) staff analyzes greenhouse gas emissions and the potential effects of climate change for all resource areas in all new reactor licensing proceedings. In guidance dated August 1, 2016 on greenhouse gas emissions and climate change, the Council on Environmental Quality (CEQ) states "action agencies need not undertake new research or analysis of potential climate change impacts in the proposed action area, but may instead summarize and incorporate by reference the relevant scientific literature."

In this regard, this EIS incorporates by reference the U.S. Global Change Research Program report (GCRP 2014-TN3472; CEQ 2016-TN4732)."

In the first step of the NRC staff's process a master table was created identifying plausible nexuses between nuclear power station resource area issues related to operation and likely climate change impacts as identified in the most recent climate change impacts report issued by the GCRP (2014-TN3472). The interagency GCRP was established under the Global Change Research Act of 1990 (P.L. 101-606) (15 U.S.C. § 2921 et seq.) (TN3330) "to understand, assess, predict, and respond to human-induced and natural processes of global change" and is the authoritative U.S. government source on likely climate change impacts in the United States. The master table was used to develop a list of questions for each resource area to assist the NRC staff in addressing whether GCRP-identified climate change impacts were likely to increase, decrease, or leave unchanged the assessed impact of a proposed facility on the environment, or to identify areas where scientific uncertainty precludes a definitive assessment. The comprehensive master table and question list can be found in the NRC's Agencywide Documents Access and Management System (ADAMS), which is accessible from the NRC website at www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room) under the following accession number ML5026A470 (NRC 2014-TN4149). A table, termed the site-specific resource table, and list of questions specific to the proposed site of Turkey Point Units 6 and 7 were then generated by removing non-relevant GCRP climate impacts and NRC resource area issues, and by using specific Southeast regional predictions identified by the GCRP. For example, the review team determined GCRP-identified direct impacts related to declining ice volume and extent were not relevant to the Turkey Point environment. The review team used the site-specific resource table and question list (NRC 2014-TN4150) in its assessment of the effects of climate change on relevant resource areas given in Section I.3. A combined construction permit and operating license (COL) is valid for 40 years (10 CFR 52.103) (TN251). In conducting its assessment, the NRC staff noted that if COLs are granted to the proposed facilities, baseline changes are more likely to be noticeable during operation (Chapter 5) than during preconstruction and construction (Chapter 4). The review team's efforts thus focused on assessing the potential effects of climate change on the resource area impact levels assigned in Chapter 5. While general scientific consensus exists that climate change is occurring and will continue to occur for the foreseeable future, significant uncertainty remains about the magnitude of the changes for specific regions and the precise magnitude and form of the impacts on the environment from climate change. The review team acknowledges this situation, explicitly noting in this appendix where uncertainty in future climate predictions and uncertainty in impacts may make it impossible at this time to conclude qualitatively the influence of climate change on a specific resource area or issue. The review team also acknowledges that the Southeast Florida Regional Climate Change Compact, which includes Miami-Dade County, has established a Regional Climate Action Plan that discusses goals to reduce greenhouse gas emissions and adapt to regional and local impacts of a changing climate. Some of the climate change impacts discussed in this appendix could be further reduced with the efforts of this Regional Compact.

I.2 Potential Climate Change Impacts in the Region

Climate change is a subject of national and international interest. The recent compilation of the state of knowledge in this area—GCRP's climate change impacts report (GCRP 2014-

TN3472)—has been considered in the preparation of this EIS. Most GCRP projections are expressed as a change expected for the later part of the 21st century (2071–2099) relative to average conditions existing in the later part of the 20th century (1970–1999). Projected changes are also dependent on future emissions of heat-trapping gases. The GCRP's climate change impacts report includes projections for wide-ranging scenarios where such emissions are rapidly reduced and where they continue to increase.

Florida Power & Light Company (FPL) has indicated that, if the COLs are granted, it expects to initiate commercial operations in the second quarter of 2027 and second quarter of 2028 for Units 6 and 7, respectively (FPL 2015-TN4502). The Atomic Energy Act (42 U.S.C. § 2011 et seq.) (TN663) and NRC regulations (10 CFR 52.103) (TN251) limit commercial power reactor licenses to an initial 40 years. If granted, under FPL's proposed schedule the COLs would be valid until 2067 and 2068. The NRC staff considers use of GCRP impacts report projections for the 2071–2099 period under a continued increasing emissions scenario to be a conservative proxy for likely future conditions encompassing the licensing action, and for assessing the effects of climate change on the resource area impact levels presented in this EIS. Unless otherwise stated, projected climate changes discussed in this section are taken from the impacts report (GCRP 2014-TN3472) and refer to changes for the 2071–2099 period relative to the 1970–1999 period under an increasing emissions scenario.

Projected changes in the climate for southeastern Florida include an increase in average surface air temperature of 5°F to 6°F. The number of days with maximum temperatures above 95°F is expected to increase, rising by 50 or more days per year for the 2041–2070 period relative to 1971−2000. The hottest and coldest days expected in a 20-year period at the end of this century (2081–2100) are both projected to be 6°F to 7°F warmer than those experienced at the turn of the last century (1986–2005); in other words, both the hottest and the coldest days will be warmer. Southeastern Florida is projected to experience no days with temperatures below 32°F during the 2070–2099 period; currently, the low-temperature extreme for the proposed Turkey Point site is 25°F (Section 2.9.1.2). Projected precipitation changes in southeastern Florida vary seasonally, increasing by 0 percent–10 percent in winter, decreasing by 0 percent–10 percent in spring, decreasing by 20 percent–30 percent in summer, and increasing by 10 percent–20 percent in fall. Extreme heavy precipitation events are expected to increase in both frequency and intensity; an event that now occurs once in 20 years is projected to occur 2 to 3 times as often by the end of the century. Heavy precipitation events are expected to have a 20 percent increase in the amount of precipitation falling. The climate change impacts report indicates that the number of tropical storms occurring around the globe will decrease, but those that occur will be stronger in force, yielding more Category 4 and 5 storms. Rainfall rates associated with tropical storms are expected to be greater, "…with projected increases of about 20 percent averaged near the center of hurricanes" (GCRP 2014-TN3472).

Sea level is projected to rise 1 to 4 ft globally by 2100 (GCRP 2014-TN3472). However, the review team acknowledges that, at the extreme high end, global sea level is predicted to rise by 8.2 ft by 2100 relative to 2000. Should this extreme high range of sea level rise occur, much of South Florida would be uninhabitable and millions of people would likely be displaced. Sea level rise, however, occurs gradually, so that adaptation is possible. As explained in the

impacts report, the amount of sea-level rise experienced in any one location "depends on whether and how much the local land is sinking…or rising, and changes in offshore currents." In its report, the GCRP rates the vulnerability of the Turkey Point area to sea-level rise as "high" to "very high," and notes an "imminent threat of increased inland flooding during heavy rain events in low-lying coastal areas such as southeastern Florida, where just inches of sea level rise will impair the capacity of stormwater drainage systems to empty into the ocean." Sea-level rise also is expected to "…accelerate saltwater intrusion into freshwater supplies from rivers, streams, and groundwater sources near the coast" and agricultural areas around Miami-Dade County "…are at risk of increased inundation and future loss of cropland with a projected loss of 37,500 acres in Florida with a 27-inch sea level rise." Water demand in southeastern Florida is projected to increase by more than 50 percent by 2060, relative to 2005, based on combined changes in population, socioeconomic conditions, and climate. The GCRP cites the Southeast Florida Regional Compact as an "excellent example" of regional cooperative efforts among local, state, and federal agencies to develop "a comprehensive action plan" to adapt to impacts from climate change and sea-level rise.

The NRC staff also considered localized sea level rise associated with changes in regional ocean currents (Ezer et al. 2013-TN4734; Park and Sweet 2015-TN4733). The NRC staff determined that these localized changes were adequately bounded by the 1 to 4 ft sea level rise projected in the GCRP report.

The Southeast region currently contains "…existing power plant capacity to produce 32 percent of the nation's electricity," but also currently consumes 27 percent of the nation's total capacity, more than any other GCRP-defined region. Higher temperatures and increased use of air conditioning are projected to increase regional energy demand, "potentially stress[ing] electricity generating capacity, distribution infrastructure, and energy costs" (GCRP 2014-TN3472).

Other climate change impacts in the Southeast region identified in the GCRP report and relevant to the Turkey Point area include ecosystem exposure to risks from sea-level rise, particularly in tidal marshes, swamps, and wetlands; compromised protection of coastal lands and people against storm surge due to tidal wetland loss; effects on fisheries and fishery habitats due to wetland loss; spread of non-native plants; decreased crop production and livestock yield; increased formation of allergens and air pollutants, including ozone; and increases in harmful algal blooms and other surface-waterborne disease-causing agents. In addition, the GCRP indicates the potential for ocean warming leading to changes in local species composition, growth rates, spawning seasons, and/or migratory patterns; increased wildfire frequency, intensity, and size; effects on vector-borne and zoonotic (animal to human) disease transmission; increased insurance costs or unavailability of insurance coverage due to increased flooding incidents; stresses on society and infrastructure due to movement of people from vulnerable areas; effects of changes in energy costs on lower income households, the elderly, native tribes, and other vulnerable communities; and damage to transportation infrastructure.

I.3 Assessment Summary

This section summarizes the review team's assessment of the effects of climate change on relevant resource areas using the process outlined in Section I.1.

I.3.1 Land Use

I.3.1.1 Land-Use Summary

Climatological changes are not likely to influence, or lead to, any plant operational impacts on local/regional land-use classifications or economic development plans. Climate change could lead to changes in the distribution of land use in Miami-Dade County and sea-level rise could lead to the loss of some inhabitable land in the county. However, once the operational workforce is housed in the initial years of operation, operation of a reactor is not expected to alter land use. Therefore, there is little potential for interaction between land-use changes resulting from climate change and land-use changes caused by later operational years of the reactor.

I.3.1.2 Land-Use Conclusion

Climatological changes are not expected to affect the land-use operational impact level assigned in Chapter 5.

I.3.2 Hydrology

I.3.2.1 Summary

Climatological changes are not expected to affect the anticipated hydrologic alterations resulting from station operation, or influence (or lead to) plant operations impacts on other water uses and users. Sea-level rise will result in greater depth of Biscayne Bay near the Turkey Point site. Because of the current very shallow conditions of Biscayne Bay in this vicinity even a modest increase in sea level may help to improve circulation (reducing the hypersalinity of water entering the radial collector well system). Circulation is also controlled by flow conditions away from the site. The review team presumed that the cooling canals' water-surface elevation would likely also rise in response to the rise in sea level. This rise would increase the volume of water in the canals, but it is not expected to appreciably change the gradient between Biscayne Bay and the cooling canals. Therefore, no change in the interface between the canals and the Bay is expected.

Sea-level rise will also push the freshwater–seawater interface further inland. This will put further stresses on freshwater resources inland. However, because the proposed Units 6 and 7 would use reclaimed wastewater for most of its water needs, this would not alter the impact of the plant. Groundwater modeling analyses performed by the NRC staff explicitly considered the changes in impacts of operation of the radial collector wells that would occur with reduced inland recharge (e.g. drought) and increased sea level (see Appendix G.3). While saltwater intrusion is shown to move farther inland under both of these scenarios, the radial collector wells are shown to not have contributed to the saltwater intrusion.

Sea-level rise combined with more frequent Category 4 and 5 storms will increase the potential for damaging storm surge events at the Turkey Point site (Little et al. 2015-TN4729). The final SER discusses the safety of the proposed plants in regard to natural flooding hazards, including hazards from extreme hurricanes combined with other factors such as sea level rise. An extreme natural flood at the site, however, could damage features at the site, including the IWF

for the existing units, piles of spoils from muck removal for the construction of the proposed units, and non-safety related structures built for the proposed units. While storm surge damage to these features would result in the release of sediment and nutrients to Biscayne Bay, such damage would not be localized to the Turkey Point site. The contribution of the Turkey Point site to the release of sediment and nutrients to Biscayne Bay as result of an extreme flood would likely be a small fraction of the total sediment and nutrient load that would enter the local waterways.

As discussed in Section I.2, precipitation amounts in South Florida are projected to shift in different directions in different seasons. Even if total precipitation increases, if the majority of this increase is in response to intense storms it would not result in a proportional increase in recharge to groundwater. The increase in temperature may also increase evapotranspiration, thereby further reducing recharge. The review team determined that overall recharge to the Biscayne Bay aquifer may be reduced as a result of climate change. However, because the proposed plant would use reclaimed wastewater for most of its water needs, this would not alter the plant's impact on the environment.

The review team could not determine whether an increase in temperature or changes in precipitation patterns would result in any change in the supply of wastewater for the plant's cooling system. A substantial increase in sea level rise, however, could impact the wastewater treatment plant that provides the primary source of cooling water for proposed Units 6 and 7. Given the abundance of wastewater in this region, the review team determined that a sufficient supply of wastewater would remain available regionally. In the event of substantial sea level rise, Miami Dade County may adapt some of its wastewater treatment infrastructure. Given the critical public health role of these facilities, the review team determined that such adaptations are reasonably foreseeable.

I.3.2.2 Conclusion

The review team identified no shift in the Chapter 5-assigned impacts on water use and water quality caused by the operation of the proposed plant due to a reasonably foreseeable alteration in the environmental baseline associated with climate change.

I.3.3 Terrestrial & Wetland Ecology

I.3.3.1 Summary

Climatological changes could affect the impact of plant operations from facility and landscape maintenance, noise, and traffic on terrestrial habitats and wildlife. In particular, climate change could increase stress on terrestrial habitats, especially the freshwater and brackish water wetlands comprising the Everglades, the mangrove wetlands adjoining Biscayne Bay, and the tree islands and remnant patches of pine rocklands that dot the surrounding landscape. Climate change could result in longer periods between precipitation events, drier conditions during some seasons, and more frequent wildfires that could facilitate introduction of new diseases and pests. Sea-level rise could stress mangrove forests due to inundation and could stress surviving wetland vegetation by introducing brackish water farther inland, while the expected tendency to armor fastlands could prevent concurrent establishment of more inland mangrove

forests and other coastal wetlands. Climate change would place additional stress on the same habitats and wildlife affected by the operational impacts discussed in Section 5.3.1. Particularly noteworthy is that the stresses on wetlands and other terrestrial habitats caused by climate change could result in greater introduction of exotic species such as Melaleuca, Australian pine, and the Burmese python.

The expected climatological changes could exacerbate the effects of plant operations (discussed in Section 5.3.1) on terrestrial habitats, wetlands, and species. In particular, climate change could lead to drier conditions due to longer periods between precipitation events and wildfires. Climate change could reduce the extent of mangrove forests primarily due to coastal inundation and sawgrass in the Everglades primarily due to alteration of hydroperiod, stressing vegetation and wildlife. Increased introduction of exotic species could further reduce the ecological and hydrological function of wetlands and reduce the suitability of various upland and wetland habitats to threatened, endangered, and rare species.

The expected climatological changes could worsen the minor effects of plant and transmission line operations on birds, bats, and other wildlife due to collisions, electrocution, or electromagnetic radiation effects (discussed in Section 5.3.1). Climate change could substantially alter the hydroperiod of habitats traversed by the proposed corridors for the two transmission lines, including the eastern Everglades and remnant pine rockland patches. These changes could stress wildlife dependent on the affected habitats, including birds, bats, and other wildlife. Even though the effects on wildlife from collisions, electrocution, and electromagnetic radiation are typically minor (see Section 5.3.1), the stresses could be exacerbated when combined with the effects of climate change.

Although climate change could potentially interact synergistically with plant operations to raise impact levels on terrestrial wildlife from plant operations and influence the impact of the proposed units on terrestrial resources and wetlands, the ability to coordinate with other agencies should not be noticeably impeded. The importance of close coordination would, however, be greater.

The expected climatological changes could affect the overall impact of plant operations on regional standing stocks of important terrestrial species, including plant impacts on species' tolerance of environmental changes and their natural survival rates. The increased potential for substantial adverse effects on the sensitive wetland and upland habitats surrounding the Turkey Point site and proposed new offsite corridors would concurrently place increased stresses on species using those habitats, including important species. The increased stresses caused by climate change could reduce the tolerance of some important species to collisions, noise, and other plant operational impacts. Furthermore, many of the identified important species are species whose populations have already been severely lowered by recent decades of drainage and development, and thus are less capable of recovery from new stresses.

The stresses placed on terrestrial habitats by climate change could lead to a greater potential for introduction of disease organisms and invasive species. Climate change could stress those habitats by decreasing the hydroperiod and by inducing the introduction of exotic species adapted to warmer climates and seasonally drier habitats. The subject habitats have already

been stressed by a history of introduction of numerous invasive species. Additional stresses to native vegetation can be expected to encourage the further establishment of invasive species.

I.3.3.2 Conclusion

Climate change could place multiple new stresses on wetlands and other terrestrial habitats, especially the hydrologically sensitive Everglades and Everglades National Park, the extensive mangrove forests bordering Biscayne Bay, including those within Biscayne National Park, and other unique ecological communities such as pine rocklands. Climate change would place additional stress on the same habitats and wildlife stressed by plant operations and could cause an increase in the impacts on terrestrial resources discussed in Section 5.3.1.

I.3.4 Aquatic Ecology

I.3.4.1 Summary

Climatological changes would have minimal influence on the impact of the operation of proposed Units 6 and 7 on aquatic resources using either reclaimed water or radial collector wells. A change in sea level would not influence the availability of reclaimed water, so an increase of cooling-water withdrawal by the radial wells is not expected. Sea-level rise will increase the depth of Biscayne Bay but it is not expected to affect the operation of the radial wells. Entrainment, entrapment, and impingement are highly unlikely due to the use of reclaimed water and RCW operation, and there is no evidence operation would directly affect aquatic resources. There is no evidence that proposed Units 6 and 7 would affect species tolerance or natural survival rates, or contribute to an increase in invasive or introduced species. Given the proposed cooling-system configurations, influence on the water quality of nearby receiving water would be negligible. Changes in baseline conditions due to climate change are not expected to alter this result. Climate change is not expected to noticeably impede the ability of agencies to coordinate on the protection of aquatic species. The importance of close coordination would, however, be greater.

I.3.4.2 Conclusion

The review team identified no shift in the Chapter 5-assigned impacts on aquatic ecology caused by the operation of the proposed plant due to a reasonably foreseeable alteration of baseline conditions associated with climate change.

I.3.5 Socioeconomics

As discussed in Section 5.4 and summarized in Section 10.2.2, within the area of socioeconomics the categories of physical impacts, demographic impacts, economic impacts, and impacts on infrastructure and community services are assessed separately, and individual category impact levels are assigned. These same categories are discussed here.

I.3.5.1 Summary

The review team determined that all of the expected physical impacts during operations (noise, air quality, buildings, roads, waterways, and aesthetics) would be SMALL and would warrant no

mitigation. During the life of the proposed license the review team expects physical impacts on the listed categories would not be exacerbated by the effects of climate change and would remain at negligible levels.

The impacts on the demographic makeup of the area surrounding the proposed site would be SMALL and would not warrant mitigation. If the speculated climate change impacts were to occur during the life of the proposed license, the review team believes the demographic impact would be an out-migration of residents to other areas with higher elevations. Consequently, the operations-related impacts on the demographic makeup of the area would be reduced even further.

All economic impacts from operations of the proposed project would be beneficial and SMALL for Miami-Dade County, Homestead, and Florida City. In the event of climate change-induced sea-level rise, which is likely to occur gradually, the NRC requires licensees of nuclear power plants to implement corrective actions to mitigate conditions adverse to safety. The applicant would need to take measures to mitigate the effects of global climate change such that the proposed nuclear power plants would continue to be operated safely in accordance with 10 CFR Part 50 (TN249). Therefore, the review team anticipates the economic impacts of operations of the proposed project would continue unchanged.

There are four major subsections in the review team's assessment of the operations-related impacts on infrastructure and community services from the proposed project: traffic, recreation, housing, and public services.

- **Traffic**. The review team determined that the operations-related impacts of traffic would be moderate. While the long-term effects of global climate change would have a deleterious impact on the current level of infrastructure in the area, the review team believes it is not unreasonable to expect decision makers in the area to incrementally adapt to the climate change effects (e.g., sea-level rise) by incorporating mitigating measures that would prevent the deterioration of infrastructure services (e.g., raising the elevation of roads). Such adaptive measures would impose significant costs on local communities, the funds for which would either have to come from increased revenues (taxes and tolls) or be diverted from other expenses (maintenance, personnel, services). Consequently, the review team expects that if the physical changes predicted by the GCRP report (GCRP 2014-TN3472) were to occur, the traffic-related impacts on the local communities would increase.
- **Recreation**. The primary receptors of recreational impacts due to operations are accessibility and aesthetics. The review team expects that, like traffic, the long-term effects of climate change would significantly change the aesthetic appeal of local recreation areas and the public's access to Biscayne Bay and the Everglades. However, the NRC portion of the total impact would remain unchanged.
- **Housing**. The review team expects that any physical change in the environment from global climate change would occur at a rate slow enough that home owners in low-lying areas could either adapt their homes to the new conditions or to move out of the area. Consequently, the cumulative impact of global climate change on housing in the economic impact area would decline as the local population migrated away from the 50 mi region.

- **Public Services**. The review team expects that any physical change in the environment from global climate change would occur at a rate slow enough that local governments could adapt to whatever negative impacts may arise. Consequently, the review team determined the global climate change impacts on community services would decline as the population migrated away from the 50 mi region.

I.3.5.2 Conclusion

As indicated in Chapter 5, the review team identified no significant shifts in socioeconomic impacts of operational impacts as a result of possible climatological changes in the environmental baseline. Potential impacts on socioeconomics including infrastructure and community services as a result of climate change would continue to be addressed through regional and local governmental strategic adaptive plans.

I.3.6 Environmental Justice

I.3.6.1 Summary

Climate change could present challenges to minority and low-income communities, which the GCRP climate change impacts report refers to as “socially vulnerable populations,” within the demographic region of the proposed project. The challenges include coping with climate change effects (e.g., sea-level rise), the capacity to adapt, and the ability to relocate. The review team believes it is not unreasonable to expect decision makers in the area to incrementally adapt to the climate change effects by implementing strategic adaptation plans and mitigating measures that would inform and assist minority and low-income communities. Therefore, the conclusions in Section 5.1.1 regarding environmental justice would remain unchanged.

I.3.6.2 Conclusion

Overall, the operational impact levels assigned to environmental justice in Chapter 5 did not change as a result of possible climatological changes in the environmental baseline. Potential impacts on environmental justice communities as a result of climate change would continue to be addressed through regional and local governmental strategic adaptive plans.

I.3.7 Historic and Cultural Resources

I.3.7.1 Summary

There are no known onsite historic and cultural resources at the Turkey Point site; therefore, there would be no shift in the impacts on historic and cultural resources caused by the operation and maintenance of the proposed plant due to a reasonably foreseeable alteration in the environmental baseline associated with climate change. It is not known whether the change in the environmental baseline would cause a shift in impacts of offsite facilities (e.g., transmission lines).

I.3.7.2 Conclusion

As previously discussed, the climatological changes would not affect the historic and cultural impact level assigned in Chapter 5 because of the lack of resources at the Turkey Point site. It is not known whether the change in the environmental baseline would affect offsite resources.

I.3.8 Meteorology

I.3.8.1 Summary

The expected climatological changes would largely be unlikely to affect cooling-system impacts from the operating plant on local weather. Projected temperature increases due to climate change may lead to an increase in fogging from the cooling tower. Changes in severe weather intensity or length of dry spells would be unlikely to change the current parameters.

I.3.8.2 Conclusion

Operational impacts from the cooling system on local weather are discussed in Section 5.7.2 and should not change as a result of reasonably foreseeable climate changes.

I.3.9 Air Quality

I.3.9.1 Summary

Climatological changes may affect the sources, types, and estimates of annual air emissions from the operating plant and transmission lines. For example, changes in climate such as sea-level rise and increased extreme weather events may lead to an increase in air emissions from emergency equipment, if additional emergency backup equipment is needed for the proposed plants and if testing of that equipment increases. Because of expected increases in temperature over the period of operation, the health impacts of operational air emissions may increase. In a higher temperature environment, the formation of ozone due to emissions of nitrogen oxides (NO_x) from the diesel generators and other equipment is likely to increase, thereby leading to an increase in health impacts.

I.3.9.2 Conclusion

Operational air-quality impacts are discussed in Section 5.7.1 and should not change as a result of reasonably foreseeable climate changes. It is unclear whether additional emergency equipment would actually be needed in a changing climate, or whether testing of that equipment would increase, causing an increase in air emissions. Any additional equipment would be subject to Clean Air Act (42 U.S.C. § 7401 et seq. (TN1141) Title V permitting requirements. Estimates of air emissions are likely to remain the same, with a possible increase in health impacts due to increased ozone formation from emergency equipment NO_x emissions in a higher temperature environment.

I.3.10 Nonradiological Health

I.3.10.1 Summary

It is not known how changes in climate will affect the presence of etiological agents associated with plant operations (receiving waters and cooling-tower operations). However, it is reasonable to expect that currently existing laws and regulations protecting workers and members of the public would continue, or would be adjusted as necessary, to be as protective as they are under current climate conditions.

Climatological changes are not likely to have an effect on noise produced by operating plants; therefore, there would be no change in the health impacts from noise discussed in Section 5.8.2.

It is not likely that climatological changes would affect potential health impacts from electromagnetic fields (EMFs) associated with plant operations because regulations protecting workers and members of the public from EMFs would likely be adjusted to avoid impacts.

It is not likely that climatological changes would affect occupational health risks for operational plants because regulations protecting workers would be adjusted to avoid impacts on workers.

As discussed in Section I.3.5.1, while the long-term effects of global climate change would have a deleterious impact on the current level of infrastructure in the area, the review team believes it is not unreasonable to expect decision makers in the area would incrementally adapt to the climate change effects (e.g., sea-level rise) by incorporating mitigating measures that would prevent the deterioration of infrastructure services (e.g., raising the elevation of roads, adjusting speed limits). The review team expects that if the physical changes predicted by the GCRP were to occur, such adaptive measures would limit potential health impacts from traffic-related accidents.

I.3.10.2 Conclusion

Overall, the expected climatological changes would not change the nonradiological health resource operational impact level assigned in Chapter 5. Potential impacts from noise, etiological agents, exposure to EMFs, and occupational injuries are and would continue to be regulated to be protective of human health. Although there is some uncertainty surrounding predicted climatological changes, it is likely that regulations governing occupational and public health would be adjusted accordingly if needed.

I.3.11 Radiological Impacts

I.3.11.1 Summary

The review team determined that the expected climatological changes would affect the possibility of exposure to radiation from the operating facility as follows:

- Existing low population exposures of humans from proposed Units 6 and 7 would remain low because the level of effluent releases and regulatory requirements should not significantly change over the time of the license.

- Existing low non-human biota exposures from proposed Units 6 and 7 should not change because the level of effluent releases and regulatory requirements should not significantly change over the time of the license.
- The level of effluent releases, regulatory requirements (including those for occupational doses), and existing low exposures should not significantly change over the time of the license.
- The level of the expected normal radioactive gaseous effluent releases would remain the same. Thus, monitoring activity should remain the same with the exception that the monitoring locations could change because of changes in the physical land and population distribution around the site. Normal radioactive liquid effluent releases should remain unchanged due to the use of deep-well injection.

I.3.11.2 Conclusion

The NRC staff identified no shift in the radiological impacts level caused by the operation of the proposed Units 6 and 7 due to reasonably foreseeable environmental alterations associated with climate change, because the level of effluent releases, regulatory requirements, and existing low population exposures should not significantly change over the time of the license.

I.3.12 Nonradioactive Waste

I.3.12.1 Summary

Sea-level rise and changes in land-use decisions may lead to changes in disposal options for nonradioactive waste and mixed wastes. However, solid, liquid, gaseous, hazardous, and mixed wastes generated during operation of the proposed Turkey Point Units 6 and 7 would still have to be handled, transported, stored, and disposed of according to County, State, and Federal regulations.

I.3.12.2 Conclusion

Because nonradioactive and mixed wastes would still be subject to applicable Federal, State, and local requirements, climatological changes are unlikely to influence the SMALL impact determination discussed in Section 5.10.4.

I.3.13 Accidents

I.3.13.1 Summary

Climatological changes are expected to affect the site-specific, 50th percentile atmospheric dilution factor (i.e., χ/Q) used to evaluate dose consequences from postulated design basis accidents (DBAs). The χ/Q around the site is dependent on local meteorological conditions (wind speed, direction and stability class). The expected variations for these parameters as a result of climate change may increase, likely leading to less stability, which would likely increase dispersion and decrease the corresponding radiological effects. However, the predominant wind direction could change such that higher χ/Qs could shift along the site boundary, low-population zone, and beyond to areas with higher population density, which would increase the

impact. Therefore, the overall impact is unknown. Climatological changes might affect the average environmental risks of severe accidents because of changes in either severe accident probabilities or associated consequences. While the potential severity of storms and other natural phenomena might increase, nuclear power plants must be designed to withstand all creditable natural events at the site of concern.

As discussed in Section I.2, climate change in general and rising sea level are expected to be gradual. If the NRC grants the FPL COL application, the staff will inspect and otherwise moniter plant construction and operation. This safety oversight process includes collection and analysis of information regarding changes in the severity or frequency of natural hazards, such as flooding from storm surge and sea level rise, as discussed in SECY-15-0137 (NRC 2015-TN4731). When warranted, the NRC can request licensee study and analysis of changing natural hazards, and can impose additional design or operation requirements to address those changing hazards. In particular, the NRC can request information from a licensee under 10 CFR 50.54(f), and can determine whether or not a license should be modified based on the information provided in response the request. Such information could include the impact of climate change on plant operation, emergency preparedness, and the availability of nearby structures used for plant operation and safety. If the NRC determines that additional safety enhancements are necessary based on information obtained in accordance with 10 CFR 50.54(f), the NRC can require that such enhancements be implemented in a timely manner to assure adequate protection of the public within the current NRC regulatory process. The NRC staff generally expects that the low core damage frequencies (CDFs) for the AP1000 pressurized water reactor design are unlikely to change appreciably due to climate change. Therefore, even if consequences of severe accidents slightly change as a result of climate change, severe accident risk is likely to remain SMALL because CDFs are maintained low.

The effects of climatological changes on the severe accident mitigation alternative (SAMA) cost-benefit analysis of the proposed facility are uncertain. While the averted costs have components that are based on local land values and the cost of evacuation and cleanup, these are typically not the major contributors to the total averted costs. Rather, the cost of replacement power has a larger effect and it is uncertain whether climate change would have an effect that would change the SAMA cost-benefit analysis. However, because the smallest difference between a cost-beneficial severe accident mitigation design alternative that was not studied further for the AP1000 design at the Turkey Point site (see Section 5.11.3) and the averted cost is approximately $400,000 (7 percent discount rate), it is difficult to see how climate change would affect the probability-weighted consequences from severe accidents in a manner to cause a finding different from SMALL for SAMAs.

I.3.13.2 Conclusion

The impact level assigned in Chapter 5 should remain SMALL for next-generation nuclear power plants like the AP1000 reactor design. The overall risks for severe accidents are significantly lower than the current generation of nuclear power plants and any climate change effect would have to change the risks by at least two orders of magnitude to result in a change in the impact level assigned in Chapter 5.

I.3.14 Transportation of Radiological Materials

I.3.14.1 Summary

The number and type of radioactive material shipments, regulatory requirements, and existing low maximally exposed individual and population exposures and risks from accidents for these types of shipments should not significantly change over the time of the license as a result of climate change. Radiological doses are strong functions of the radiation dose rate emitted from the shipment, exposure distance, and exposure duration. None of these parameters would be directly or disproportionately influenced by the impacts of climate change. Transportation accidents risks are a function of weather conditions. However, climate change may increase dispersion conditions in some areas as a result of more frequent storms and severe weather, but may also reduce dispersion in areas where climate change may result in more mild average conditions. As a result, the changes in transportation impacts potentially caused by climate change are not expected to be significant, but there are substantial uncertainties about impacts on weather conditions in specific areas and demographic changes that could affect transportation impacts in the region of interest.

I.3.14.2 Conclusion

Impact levels are not expected to change as a result of the effects of climate change, but there are significant uncertainties associated with the impacts of climate change on local weather conditions and demographics.

I.3.15 Benefit-Cost

I.3.15.1 Summary

Climatological changes could affect the estimated operational benefits and costs of the proposed facility. Proposed Turkey Point Units 6 and 7 would continue to provide benefits in the form of electricity generation and economic impacts to the region such as tax impacts and other spending. To the extent that summer peak demand load increases, the benefit of a large baseload power station such as Units 6 and 7 could increase.

Operating costs include maintenance costs, fuel costs, and annualized capital costs. Future climate change impacts would not affect the already incurred capital costs. However, to the extent that climate change events require repair or prolonged shutdown of Units 6 and 7, maintenance costs could increase.

I.3.15.2 Conclusion

Although climate change could increase or decrease the benefits and costs of the project, the review team expects the accrued benefits of construction and operation of Units 6 and 7 would still outweigh the associated costs.

I.3.16 U.S. Army Corps of Engineers Public Interest Review

I.3.16.1 Summary

Pursuant to NEPA and the USACE public interest review at 33 CFR 320.4, the USACE considers the effects of climate change and sea level rise on the proposed project in order to determine whether the proposed project is contrary to the public interest. As set forth below, the USACE has determined that the NRC Advanced Safety Evaluation (ASE) dated July 14, 2016, on the Florida Power & Light (FPL) application to the NRC considers the effects of sea level rise on the proposed project (NRC 2016-TN4775).

As background, the NRC determined that the structures, systems, components, and design features of the AP1000 standard design comply with applicable NRC regulations and therefore provide adequate protection to the health and safety of the public. The NRC based its evaluation of the AP1000 design in part on assumed physical and environmental site features, such as maximum flood height compared to plant elevation, used to design the standard plant. The NRC calls these site features assumed for design "site parameters," and they are specified in the Design Control Document (DCD) for the AP1000 standard design. In order for a company to obtain an NRC license to build and operate an AP1000 plant at an actual site, its application must show that the AP1000 design can handle the actual physical and environmental features of the proposed site, which the NRC calls "site characteristics." To do this, the applicant compares the actual site characteristics to the site parameters postulated for design. If the site characteristics fall within the site parameters used to design the plant, then the standard AP1000 design protects the plant from the effects of the environment on the plant at that site, as required by NRC regulations. If a site characteristic does not fall within a site parameter, the applicant must provide engineering analysis to justify why the plant is nevertheless acceptable to build and operate on the proposed site.

For the proposed Turkey Point Units 6 and 7 reactors, the FPL application to the NRC included information to demonstrate that the actual Turkey Point site characteristics fall within the site parameters in the AP1000 DCD, except for four site parameters. For these four site parameters, FPL proposed departures from the AP1000 DCD, as allowed under NRC regulations. The four site parameters for which FPL proposed departures are population distribution exclusion area (site), the operating basis wind speed, maximum safety wet-bulb (non-coincident) air temperature value, and maximum normal wet-bulb (non-coincident) air temperature value. The NRC staff evaluation of the application in the ASE for Turkey Point Units 6 and 7 concludes that the applicant (1) justified the four proposed departures from the DCD site parameters and (2) demonstrated that the other characteristics of the Turkey Point site fall within (are bounded by) the site parameters specified in the AP1000 DCD (NRC 2016-TN4775).

In assessing whether the actual site characteristics fall within the postulated site parameters in the DCD, both the application and the NRC ASE consider the effects of sea-level rise. In particular, the NRC staff evaluations in the ASE Sections 2.3.1.4.7, "Climate Change," 2.4.5.4.4, "Antecedent Water Level," 2.4.5.4.5, "Analysis of Probable Maximum Storm Surge," 2.4.5.4.6, "Wave Actions," 2.4.6.4.3, "Source Generator Characteristics," 2.4.6.4.5, "Tsunami Water Levels," and 2.4.9.4.3, "Shoreline Changes" explicitly consider the effects of sea-level rise in

connection with the NRC staff evaluation of the Turkey Point site characteristics. While the NRC staff did not explicitly consider sea level rise in its evaluation in ASE Section 2.4.12.4.12, "Site Characteristics for Subsurface Hydrostatic Loading," the NRC staff determined that the actual groundwater level was at least twenty (20) feet below the maximum allowable groundwater level specified in the DCD for the AP1000 design, and that no further evaluation was warranted (NRC 2016-TN4775).

I.3.16.2 Conclusion

In view of the foregoing, the USACE has determined that the NRC staff has evaluated the effects of sea level rise on the proposed Turkey Point Units 6 and 7 in the context of its flooding evaluations in the ASE.

I.4 References

10 CFR Part 50. *Code of Federal Regulations*, Title 10, *Energy*, Part 50, "Domestic Licensing of Production and Utilization Facilities." Washington, D.C. TN249.

10 CFR Part 52. *Code of Federal Regulations*, Title 10, *Energy*, Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants." Washington, D.C. TN251.

15 U.S.C. § 2921 et seq. Global Change Research Act of 1990. TN3330.

42 U.S.C. § 2011 et seq. Atomic Energy Act of 1954. TN663.

42 U.S.C. § 4321 et seq. National Environmental Policy Act (NEPA) of 1969, as amended. TN661.

42 U.S.C. § 7401 et seq. Clean Air Act. TN1141.

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NRC (U.S. Nuclear Regulatory Commission). 2014. "Climate Change Table Specific to Turkey Point." Washington, D.C. Accession No. ML15026A471. TN4150.

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Park, J. and W. Sweet. 2015. "Accelerated Sea Level Rise and Florida Current Transport." *Ocean Science Discussions* 12:551–572, Gottingen, Germany. TN4733.

APPENDIX J

GREENHOUSE GAS FOOTPRINT ESTIMATES FOR A REFERENCE 1,000 MW(E) LIGHT-WATER REACTOR

APPENDIX J

GREENHOUSE GAS FOOTPRINT ESTIMATES FOR A REFERENCE 1,000 MW(E) LIGHT-WATER REACTOR

The review team has estimated the greenhouse gas (GHG) footprint of various activities associated with nuclear power plants. These activities include building, operating, and decommissioning a nuclear power plant. The estimates include direct emissions from the nuclear facility and indirect emissions from workforce transportation and the fuel cycle.

Preconstruction/construction equipment estimates listed in Table J-1 are based on hours of equipment use estimated for a single nuclear power plant at a site requiring a moderate amount of terrain modification (UniStar 2007-TN1564).

Table J-1. GHG Emissions from Equipment Used in Preconstruction/Construction and Decommissioning

Equipment	Preconstruction/ Construction Total[(a)] (MT CO_2e)	Decommissioning Total[(b)] (MT CO_2e)
Earthwork and dewatering	12,000	6,000
Batch plant operations	3,400	1,700
Concrete	5,400	2,700
Lifting and rigging	5,600	2,800
Shop fabrication	1,000	500
Warehouse operations	1,400	700
Equipment maintenance	10,000	5,000
Total[(c)]	39,000	19,000

(a) Based on hours of equipment usage over 7-year period
(b) Based on equipment usage over 10-year period
(c) Results are rounded

Preconstruction/construction equipment carbon monoxide (CO) emission estimates were derived from the hours of equipment use and carbon dioxide (CO_2) emissions were then estimated from the CO emissions using a scaling factor of 172 tons of CO_2 per ton of CO. The scaling factor is based on the ratio of CO_2 to CO emission factors for diesel fuel industrial engines as reported in Table 3.3-1 of AP-42 (EPA 2012-TN2647). A CO_2 to total GHG equivalency factor of 0.991 is used to account for the emissions from other GHGs such as methane (CH_4) and nitrous oxide (N_2O). The equivalency factor is based on non-road/construction equipment (Chapman et al. 2012-TN2644). Equipment emissions estimates for decommissioning are assumed to be one-half of those for preconstruction/construction. Data on equipment emissions for decommissioning are not available; the one-half factor is based on the assumption that decommissioning would involve less earth moving and hauling of material and fewer labor hours than preconstruction/construction.

Table J-2 lists the review team's estimates of the CO_2 equivalent (CO_2e) emissions associated with workforce transportation. Preconstruction/construction workforce estimates for new plant are conservatively based on estimates in various combined license applications (Chapman et al. 2012-TN2644); operational and decommissioning workforce estimates are based on Supplement 1 to NUREG–0586 (NRC 2002-TN665). Table J-2 lists the assumptions used to estimate total miles traveled by each workforce and the factors used to convert total miles to metric tons (MT) CO_2e. The workers are assumed to travel in gasoline-powered passenger vehicles (i.e., cars, trucks, vans, and sport utility vehicles) that get an average of 21.6 mi/gal of gasoline (FHWA 2012-TN2645). Conversion from gallons of gasoline burned to CO_2e is based on U.S. Environmental Protection Agency (EPA) emission factors (EPA 2012-TN2643).

Table J-2. Workforce GHG Footprint Estimates

	Preconstruction/ Construction Workforce	Operational Workforce	Decommissioning Workforce	SAFSTOR Workforce
Commuting trips (round trips per day)	1,000	550	200	40
Commute distance (miles per round trip)	40	40	40	40
Commuting days (days per year)	365	365	250	365
Duration (years)	7	40	10	40
Total distance traveled (mi)[(a)]	102,000,000	321,000,000	20,000,000	23,000,000
Average vehicle fuel efficiency[(b)] (mi/gal)	21.6	21.6	21.6	21.6
Total fuel burned[(a)] (gal)	4,700,000	14,900,000	900,000	1,100,000
CO_2 emitted per gal[(c)] (MT CO_2)	0.00892	0.00892	0.00892	0.00892
Total CO_2 emitted[(a)] (MT CO_2)	42,000	133,000	8,000	10,000
CO_2 equivalent factor[(c)] (MT CO_2/MT CO_2e)	0.977	0.977	0.977	0.977
Total GHG emitted[(a)] (MT CO_2e)	43,000	136,000	8,000	10,000

(a) Results are rounded
(b) FHWA 2012-TN2645
(c) EPA 2012-TN2643

Title 10 of the *Code of Federal Regulations* (CFR) 51.51(a) (TN250) states that every environmental report prepared for the combined license stage of a light-water-cooled nuclear power reactor shall take Table S–3 from 10 CFR 51.51(b) (TN250) as the basis for evaluating the contribution of the environmental effects of the uranium fuel cycle in licensing the nuclear power reactor. 10 CFR 51.51(a) (TN250) further states that Table S–3 shall be included in the environmental report and may be supplemented by a discussion of the environmental significance of the data set forth in the table as weighted in the analysis for the proposed facility.

Table S–3 does not provide an estimate of GHG emissions associated with the uranium fuel cycle; it only addresses pollutants that were of concern when the table was promulgated in the 1980s. However, Table S–3 does state that 323,000 MWh is the assumed annual electric

energy use for the reference 1,000 MW(e) nuclear plant and this 323,000 MWh of annual electric energy is assumed to be generated by a 45 MW(e) coal-fired power plant burning 118,000 MT of coal. Table S–3 also assumes approximately 135,000,000 standard cubic feet (scf) of natural gas is required per year to generate process heat for certain portions of the uranium fuel cycle. The review team estimates that burning 118,000 MT of coal and 135,000,000 scf of natural gas per year results in approximately 253,000 MT of CO_2e being emitted into the atmosphere per year due to the uranium fuel cycle (Harvey 2013-TN2646).

The review team estimated GHG emissions related to plant operations from a typical usage of various diesel generators onsite (UniStar 2007-TN1564). CO emission estimates were derived assuming an average of 600 hr of emergency diesel generator operation per year (i.e., four generators, each operating 150 hr/yr) and 200 hr of station blackout diesel generator operation per year (i.e., two generators, each operating 100 hr/yr). A scaling factor of 172 was then applied to convert the CO emissions to CO_2 emissions and a CO_2 to total GHG equivalency factor of 0.991 was used to account for the emissions from other GHGs such as CH_4 and N_2O.

Given the various sources of GHG emissions discussed above, the review team estimates the total life-cycle GHG footprint for a reference 1,000 MW(e) nuclear plant with an 80 percent capacity factor to be about 10,500,000 MT. The components of the footprint are summarized in Table J-3. The uranium fuel cycle component of the footprint dominates all other components. It is directly related to power generated. As a result, it is reasonable to use reactor power to scale the footprint to larger reactors.

Table J-3. Nuclear Plant Lifetime GHG Footprint

Source	Activity Duration (yr)	Total Emissions (MT CO_2e)
Preconstruction/construction equipment	7	39,000
Preconstruction/construction workforce	7	43,000
Plant operations	40	181,000
Operations workforce	40	136,000
Uranium fuel cycle	40	10,100,000
Decommissioning equipment	10	19,000
Decommissioning workforce	10	8,000
SAFSTOR workforce	40	10,000
Total[(a)]		10,500,000

(a) Results are rounded

The Intergovernmental Panel on Climate Change (IPCC) released a special report on renewable energy sources and climate change mitigation in 2012 (IPCC 2012-TN2648). Annex II of this IPCC report includes an assessment of previously published works on life-cycle GHG emissions from various electric generation technologies, including nuclear energy. In this assessment, the IPCC included only material that passes certain screening criteria for quality and relevance. The IPCC screening yielded 125 estimates of nuclear energy life-cycle GHG emissions from 32 separate references. The IPCC-screened estimates of the life-cycle GHG emissions associated with nuclear energy, as shown in Table A.II.4 of the report, ranged more than two orders of magnitude, from 1 to 220 g of CO_2e/kWh, with 25 percentile, 50 percentile,

and 75 percentile values of 8 g CO_2e/kWh, 16 g CO_2e/kWh, and 45 g CO_2e/kWh, respectively. The range of the IPCC estimates is due, in part, to assumptions regarding the type of enrichment technology employed, how the electricity used for enrichment is generated, the grade of mined uranium ore, the degree of processing and enrichment required, and the assumed operating lifetime of a nuclear plant.

The review team's life-cycle GHG estimate of approximately 10,500,000 MT CO_2e for the reference 1,000 MW(e) nuclear plant is equal to about 37.5 g CO_2e/kWh, which places the review team estimate between the 50 and 75 percentile values of the IPCC estimates given in Table A.II.4 of the report.

In closing, the review team considers the footprint estimated in Table J-3 to be appropriately conservative. The GHG emissions estimates for the dominant component (uranium fuel cycle) are based on 30-year-old enrichment technology assuming that the energy required for enrichment is provided by coal-fired generation. Different assumptions related to the source of energy used for enrichment or the enrichment technology that would be just as reasonable could lead to a significantly reduced footprint.

Emissions estimates presented in the body of this environmental impact statement have been scaled to values appropriate for the proposed project. The uranium fuel cycle emissions have been scaled by reactor power and plant capacity factor using the scaling factor determined in Chapter 6 and by the number of reactors to be built. Plant operations emissions have been adjusted to represent the number of large GHG emissions sources (e.g., diesel generators and boilers) associated with the project. The workforce emissions estimates have been scaled to account for differences in workforce numbers and commuting distance. Finally, equipment emissions estimates have been scaled by estimated equipment usage. As can be seen in Table J-3, only the scaling of the uranium fuel-cycle emissions estimates makes a significant difference in the total GHG footprint of the project.

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APPENDIX K

POTENTIAL USACE ALTERNATIVE TRANSMISSION LINE ROUTES

APPENDIX K

POTENTIAL USACE ALTERNATIVE TRANSMISSION LINE ROUTES

Analysis of Transmission Line Alternatives

On June 30, 2009, the U.S. Army Corps of Engineers (USACE or Corps) received a Department of the Army (DA) permit application from Florida Power & Light Company (FPL) to construct the proposed Turkey Point Units 6 and 7, reclaimed water facility, access roads, radial collector wells, pipelines, transmission lines, and other related infrastructure. The proposed work would require a DA permit for structures in/over and under navigable waters of the United States, and the discharge of dredged or fill material into waters of the United States, including wetlands. The USACE is participating as a cooperating agency with the U.S. Nuclear Regulatory Commission (NRC) in preparing this environmental impact statement (EIS).

Transmission line siting in Florida is regulated under the Florida Power Plant Siting Act (PPSA) (Fla. Stat. 29-403.501 2011-TN1068), and Chapter 62-17 of the Florida Administrative Code (Fla. Admin. Code 62-17-TN1247). The PPSA provides a centralized review process for new electrical generating facilities in Florida, involving a balancing of "the increasing demand for electrical power plants with the broad interests of the public." FPL undertook a route-selection process to select the transmission line corridors that were submitted for approval under the Florida PPSA (Fla. Stat. 29-403.501 2011-TN1068). Public comments requested that the transmission lines be buried under ground to minimize impacts. Underground transmission lines were considered but FPL indicated that the technology may not be available to support the high temperatures over long distances. This issue is currently being evaluated as part of the remand from the State of Florida to review the approved State Certification and will be considered as part of the Corps' Clean Water Act Section 404(b)(1) Guidelines analysis to determine the least environmentally damaging practicable alternative (LEDPA).

K.1 Summary of All Transmission Line Corridors Considered

FPL submitted two main transmission line corridors in their 2009 application to distribute the power generated from the proposed nuclear reactors. The first corridor, labeled the West corridor, proposes lines from Turkey Point and the Clear Sky substation to the Pennsuco substation. This corridor is generally located in the western half of Miami-Dade County, and is proposed in five (5) segments (Figure K-1). The second corridor, labeled the East corridor, proposes lines from Turkey Point and the Clear Sky substation to the Miami substation. This corridor is generally located in the eastern half of Miami-Dade County, and is proposed in one (1) segment (Figure K-1).

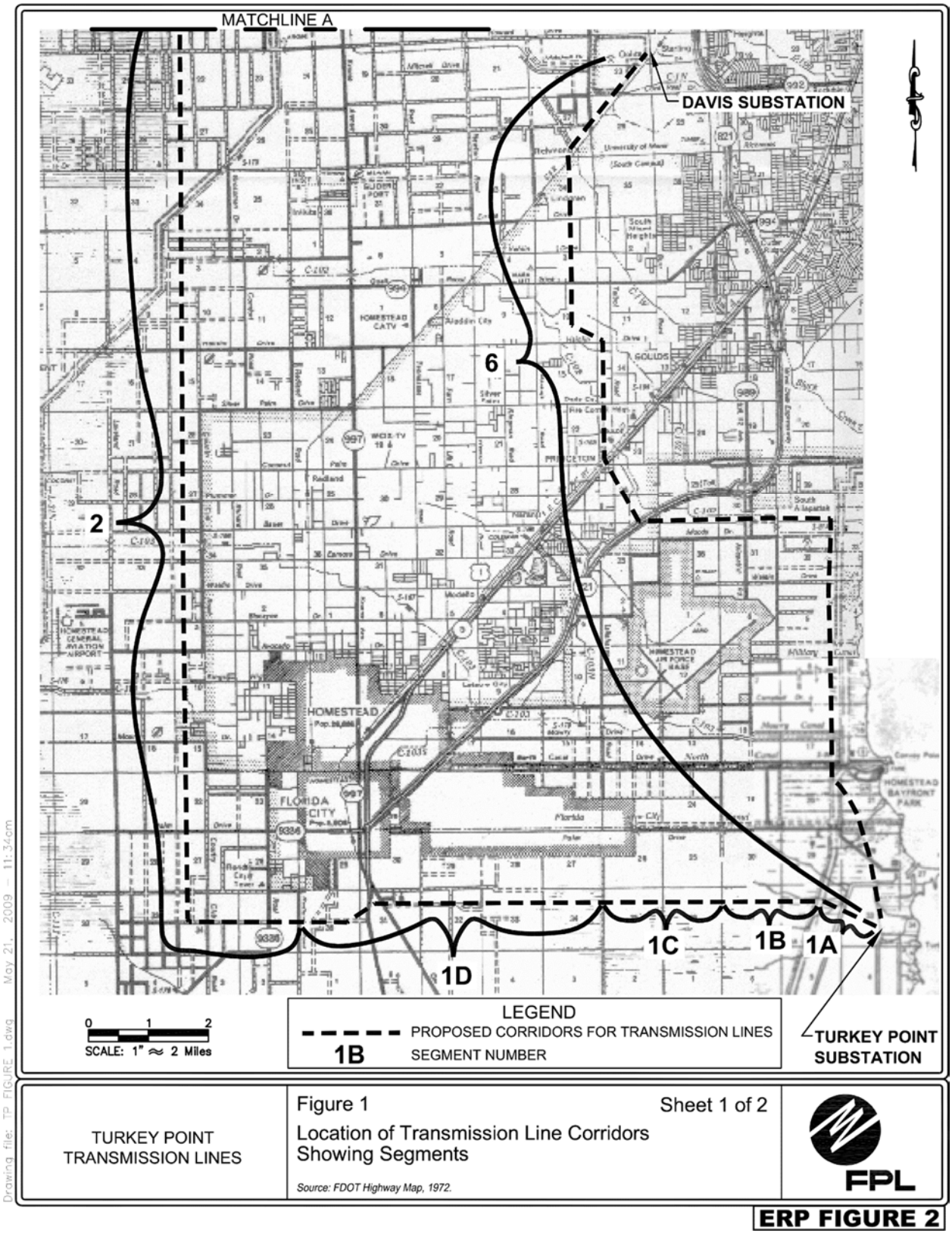
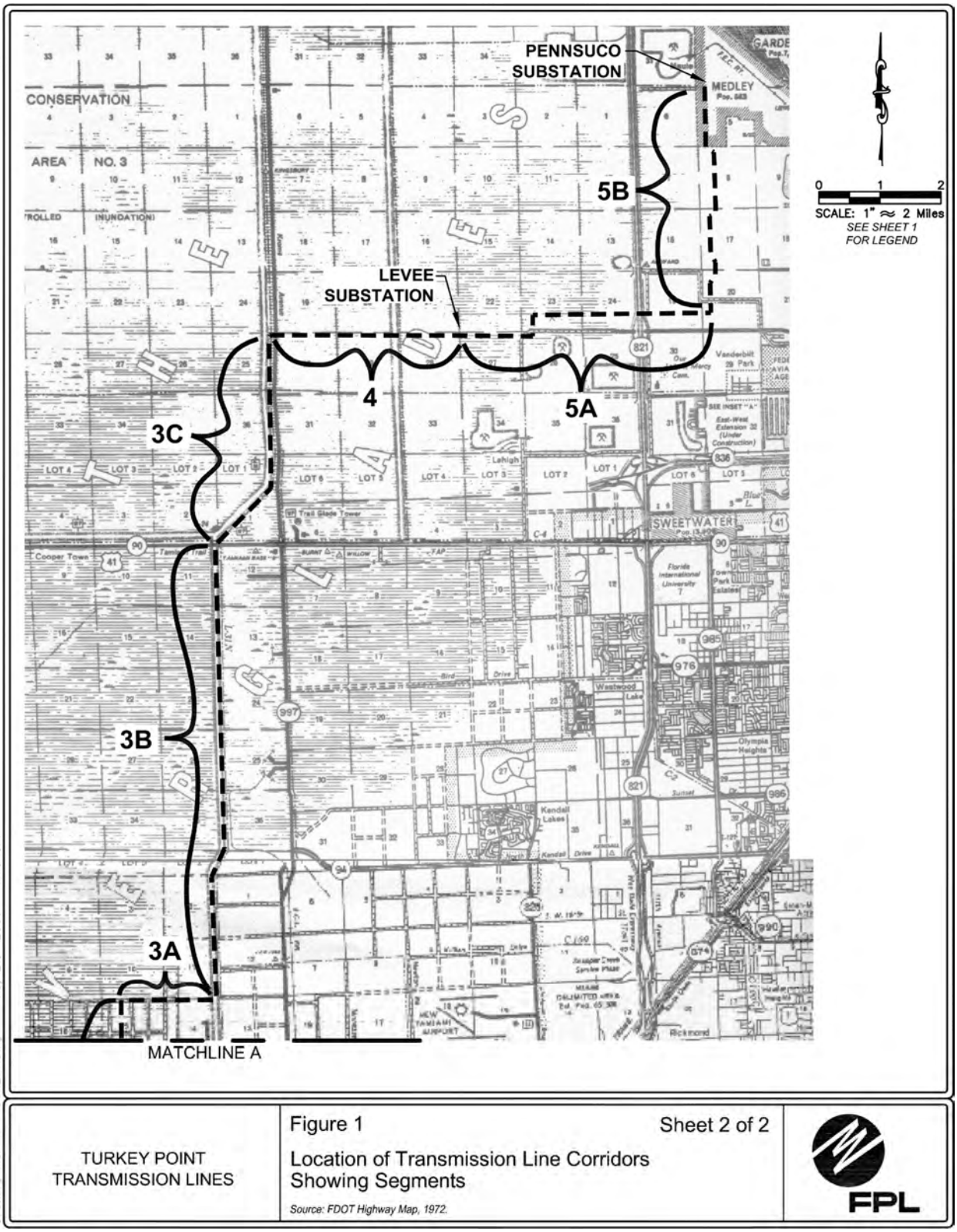


Figure K-1. Transmission Line Segments



TURKEY POINT
TRANSMISSION LINES

Figure 1 Sheet 2 of 2

Location of Transmission Line Corridors
Showing Segments

Source: FDOT Highway Map, 1972.

FPL

Figure K-1. (contd)

FPL originally considered several alignments within the northwest portion of the West corridor due to potential impacts on higher quality wetland areas, including Everglades National Park (ENP). In 2009, the application contained the East Preferred corridor, the West Secondary corridor, and the West Preferred corridor and the State of Florida Site Certification Application (SCA) contained a series of unnamed corridors associated with the East corridor (FPL 2010-TN272). In 2011, several options were submitted, including Agency Staff Alternative Routes 1, 2, 3; West Krome Avenue; and East Krome Avenue (Figure K-2). Via letter correspondence dated September 11, 2013, FPL provided the USACE with additional options for the West corridor, which included routes labeled Miami-Dade Limestone Products Association (MDLPA) 1, MDPLA 2, MDPLA 3, and National Parks Conservation Association (NPCA). In the September 11, 2013 letter, FPL did not modify the USACE application to include the West Consensus corridor because they could not yet determine the viability of the West Consensus corridor (using MDLPA Alternate Corridor 2) option (FPL 2013-TN4754). In December 2013, FPL introduced the West Consensus corridor to the USACE as a viable option (FPL 2013-TN4779). On July 8, 2016, FPL decided on and conveyed to the USACE their final option within the West corridor: the West Consensus corridor (Figure K-3; FPL 2016-TN4745). All of the above-listed options are within FPL's proposed segments 3 and 4 for the Western transmission line corridor. All commence at SW 120th Street and theoretical SW 204th Avenue, and end at the Levee substation.

FPL originally considered several alignments within the northern portion of the East corridor (Figure K-4; FPL 2010-TN272)) along existing transmission line corridors, established transportation corridors, and older neighborhoods where pipelines, sidewalks, and other residential infrastructure are already located. In October 2013, the Village of Pinecrest and the City of Coral Gables proposed the Village of Pinecrest/City of Coral Gables Alternate corridor. This alignment was submitted to the State of Florida as part of the SCA process but FPL never modified the Corps application and the State of Florida did not certify this transmission line corridor (Figure K-5). The segment connecting the Clear Sky and Davis substations traverses the same area as the East Preferred corridor. These unnamed routes follow the same route from the Clear Sky-to-Davis substation but start to diverge after that point. They all terminate at the Miami substation.

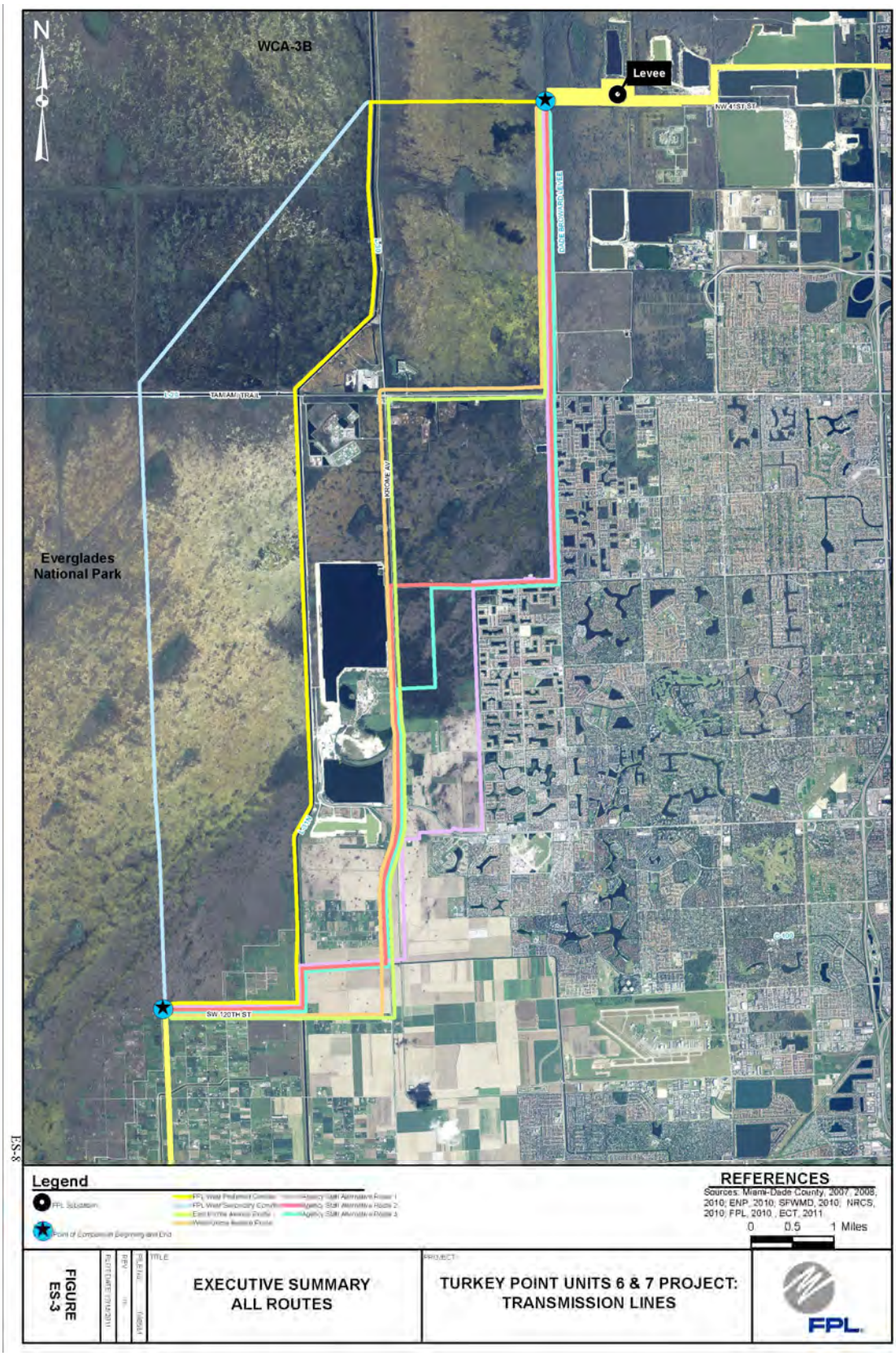


Figure K-2. FPL Turkey Point Transmission Line West Corridor – All Potential Routes

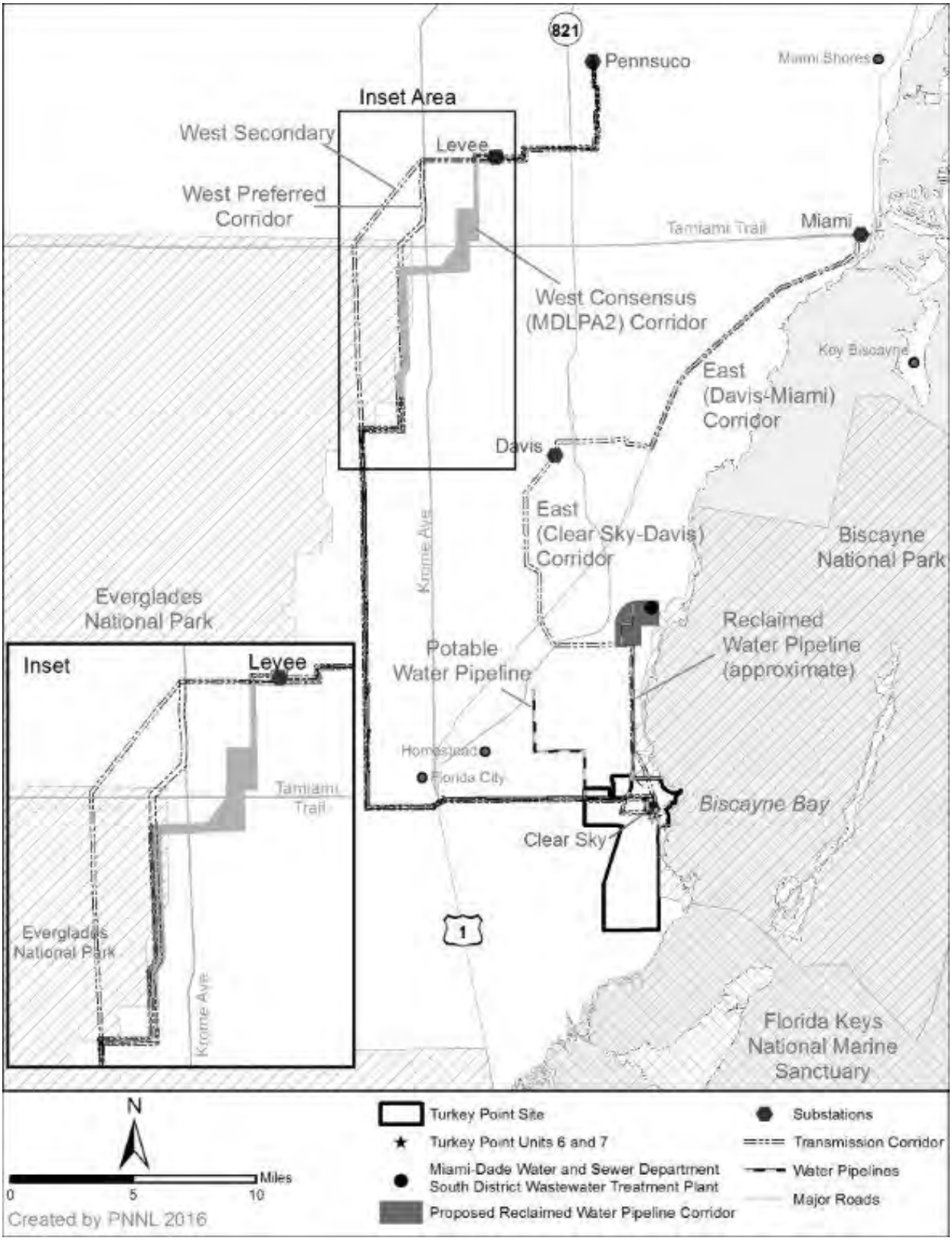


Figure K-3. FPL Turkey Point Transmission Line West Consensus Corridor

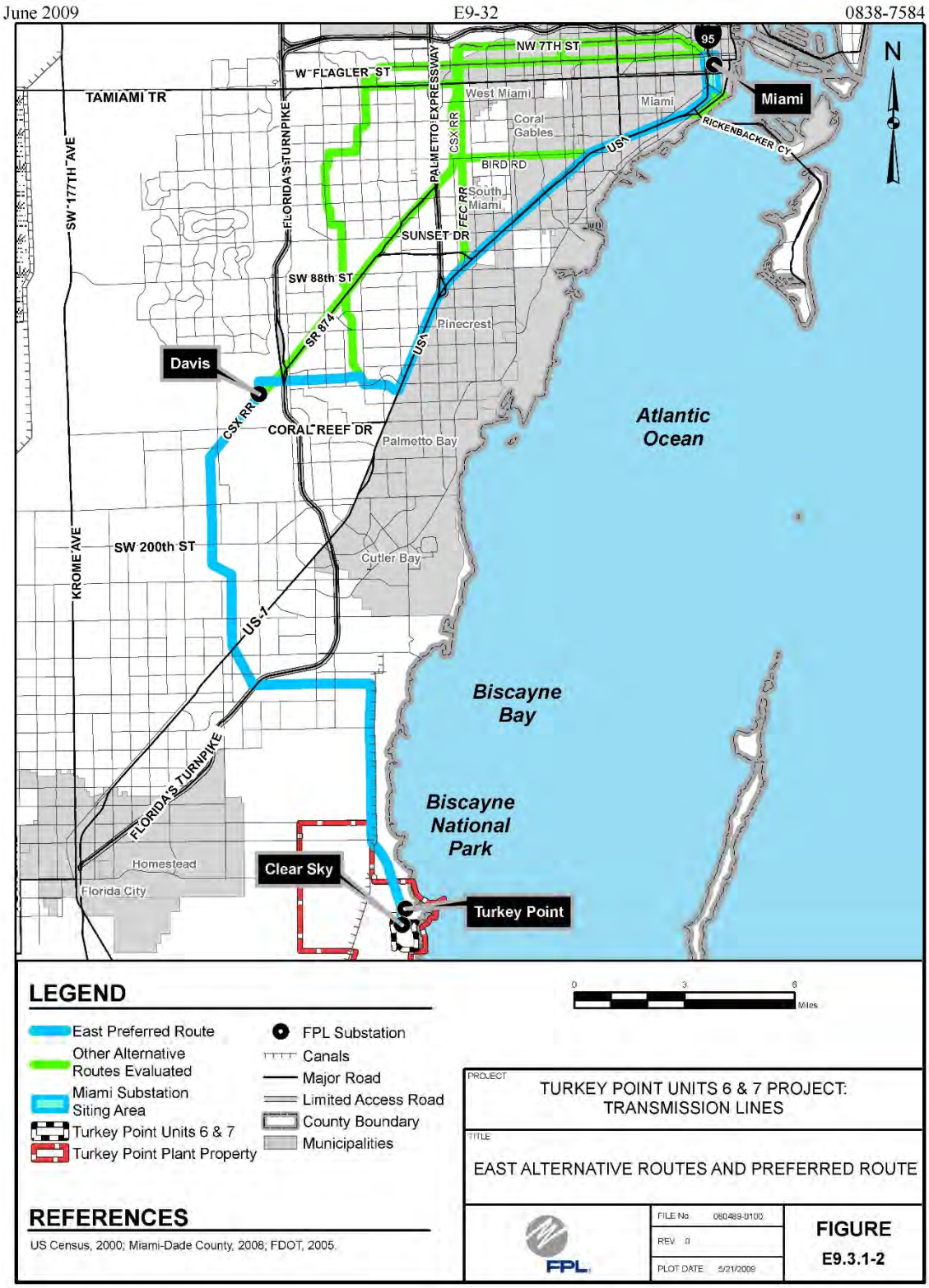
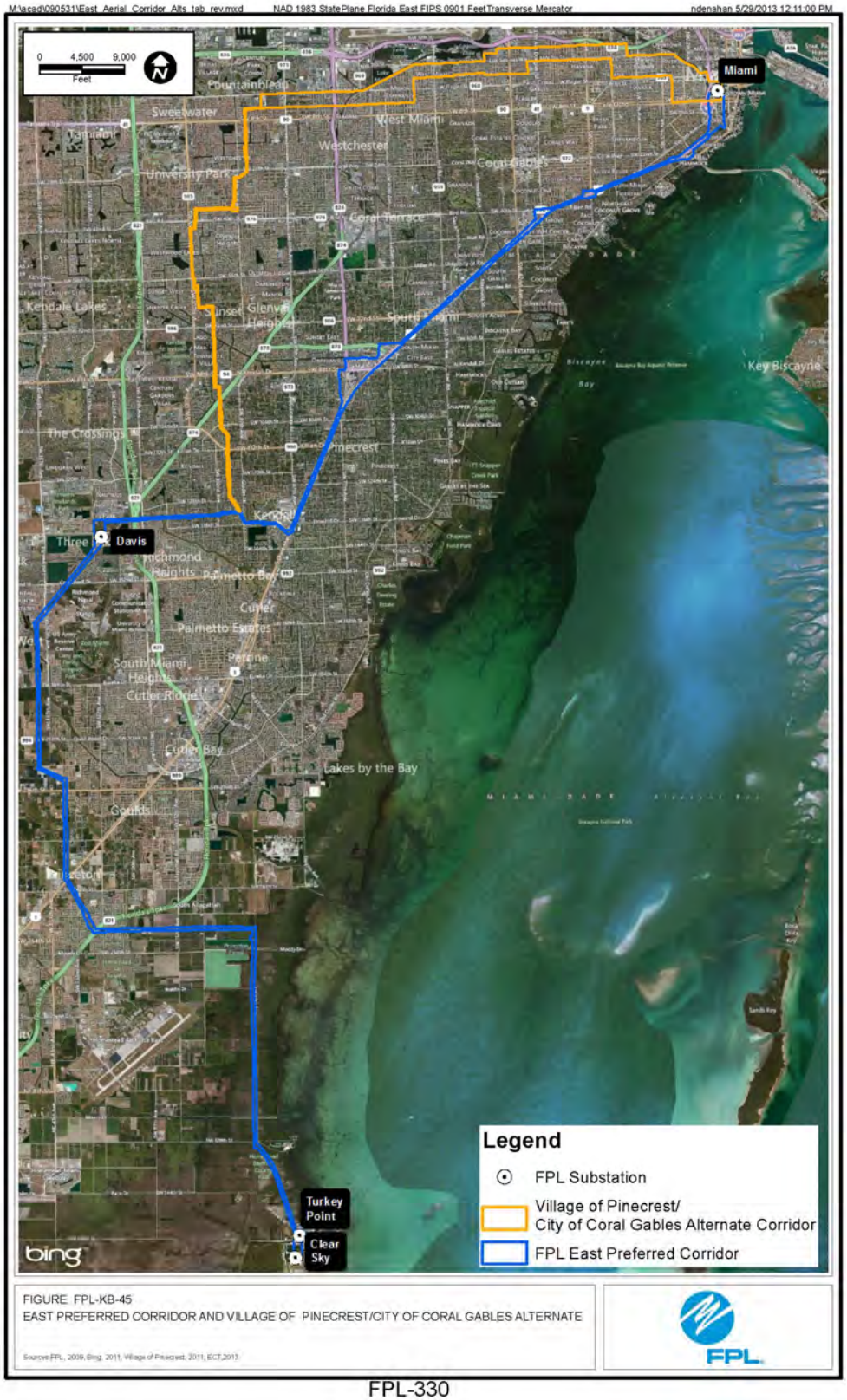


Figure K-4. East Alternatives Routes and Preferred Route (FPL 2010-TN272)



FPL-330

Figure K-5. East Preferred Corridor and Village of Pinecrest/City of Coral Gables Alternative (FPL 2013-TN4777)

K.2 Alternatives Carried Forward for Detailed Review

The East corridor and the West corridor, including the West Secondary corridor, West Preferred corridor, and the West Consensus corridor, were carried forward for further review. The other previously discussed alignments were eliminated from further consideration because of a combination of issues, including right-of-way acquisition; length alignment; buildings in proximity to the alignment; non-FPL parcels crossed; FPL substations crossed; collocation opportunities along the FPL right-of-way and other linear facilities; existing parks, recreation areas, and conservation lands; forested and nonforested wetlands; eagle nest and wading bird colonies; space restrictions; impacts on the Miami-Dade Urban Development Boundary; impacts on Native American lands; conflicts with existing mining operations; and proximity to residential development. This information was submitted by FPL via letter correspondence dated December 21, 2011 and September 11, 2013, in response to several USACE requests for additional information (FPL 2011-TN4753; FPL 2013-TN4754). Additionally, the USACE used information submitted to the State of Florida regarding the East corridor. The USACE independently reviewed FPL's assessment of alternative alignments and considered that the Agency Staff Alternative Routes 1, 2, 3; West Krome Avenue; East Krome Avenue; MDLPA 1, MDPLA 2, MDPLA 3, and NPCA; several unnamed segments in the northern portion of the East corridor and the Village of Pinecrest/City of Coral Gables Alternate corridor should be eliminated from detailed study. Even though in most cases the proposed transmission line corridors were mapped to be collocated with existing infrastructure, there was not enough room to safely install another pole to accommodate the new lines. Because the eastern corridor is predominantly urban landscape, residential and commercial infrastructure dominates. Significant acquisition and demolition of buildings would be needed to achieve the necessary safe distance to construct the new power poles needed to construct the new transmission line which the USACE determined would not be practicable. The USACE retained the West Secondary corridor for a more detailed review because the land swap associated with the West Preferred corridor had not been finalized even though FPL withdrew it from the application prior to the public notice being published. The land swap involves a Congressionally mandated exchange of lands on the eastern boundary of ENP for the lands located inside the West Secondary corridor.

K.3 Purpose and Need

The Corps has determined the basic project purpose is to meet the public's need for electric energy. The overall project purpose is to meet the public's need for reliable increased electrical baseload generating capacity in FPL's service territory. The transmission lines are necessary to distribute power to the continuously expanding population of Miami-Dade County. Specifically, the transmission lines will deliver approximately 2,200 MW of new generation from Turkey Point Units 6 and 7 to the State's electric grid through connections to other existing FPL substations in Miami-Dade County. Both eastern and western transmission lines are required because power from the new units must be delivered to different substations for distribution in order to maintain electrical system reliability. The East and West Preferred corridors both commence at the Turkey Point substation and connect to the Clear Sky substation, which is approximately 0.4 mi away. Improvements would be made to the Turkey Point substation to accommodate the new 230 kV line from Clear Sky substation.

The East transmission corridor includes a 230 kV transmission line between the proposed Clear Sky Substation at Turkey Point to the Miami substation at the northeast intersection of SW 2nd Avenue and the Miami River. The West transmission corridor includes two 500 kV transmission lines between the proposed Clear Sky Substation and the Levee substation located east of State Road 997/Krome Avenue and north of U.S. Highway 41/Tamiami Trail, and one 230-kV transmission line between the proposed Clear Sky Substation and the Pennsuco Substation located along NW 106th Street, south of U.S. Highway 27 near Medley.

K.4 No Action

If the transmission lines are not constructed, power that would be generated from proposed Units 6 and 7 would not be able to reach consumers (i.e., the Miami baseload). The existing distribution system is unable to handle such an additional power load. FPL selected transmission line corridors that could be collocated with disturbed linear facilities such as existing roadways, canals, and rights-of-way. Collocation with existing linear features minimizes the amount of additional clearing of rights-of-way required for construction and reduces wetland impacts associated with access roads and structure pads. The no-action alternative would not allow the applicant to achieve the project purpose.

K.5 Summary of Reasonable Alternatives

The proposed project includes two transmission line corridors: an eastern corridor and a western corridor. The originally proposed West corridor includes a main corridor that diverges into two options—a West Preferred corridor and a West Secondary corridor—and re-forms into one corridor from the Levee substation to the Pennsuco substation. The proposed West corridor, with either option, would include two 500 V single-circuit transmission lines connecting the new Clear Sky substation to the existing Levee substation and one 230 kV single-circuit transmission line connecting the Clear Sky substation to the existing Pennsuco substation. A third option, the West Consensus corridor, was proposed and accepted into the SCA as a Condition of Certification on December 5, 2013. It would also contain infrastructure similar to that described above for the two other West corridor options. The proposed East Preferred corridor consists of a new 230 kV, approximately 19 mi long, transmission line constructed to connect the proposed new Clear Sky substation to the existing Davis substation, and a new 230 kV line approximately 18 mi long, would be constructed to connect the Davis substation to a new 230 kV bay position at the Miami substation (Figure K-3).

K.5.1 General Description of Impacts on the West Corridor

The West corridor consists of the construction of two 500 kV lines from the new Clear Sky substation to the Levee substation and a 230 kV line to the Pennsuco substation. FPL proposes to construct the West corridor in five segments. These segments were based on the type of hydroperiod (deep, moderate, short) present, which correlates to the amount of fill FPL would need to construct the project. Segment 1 starts at the proposed Clear Sky substation and Segment 5 culminates at the Pennsuco substation. Segments 1, 2, and 5 are the same for the West corridor. Segments 3 and 4 show the variations between the three options, which are named the West Preferred, West Secondary, and West Consensus corridors. One of these three options would be constructed within a single right-of-way of approximately 330 ft in width

up to the Levee substation. From the Levee substation to the Pennsuco substation, the single 230 kV line would be constructed largely within an existing multi-circuit right-of-way that is approximately 170 ft in width.

Overall, potential impacts associated with the West corridor generally include impacts on agricultural land, residential communities, environmentally protected lands, and lands within the Miami-Dade County wellfield protection areas. Wetlands would also be affected, in addition to hydrology and freshwater flows that benefit the ENP and associated estuaries, and habitat supporting threatened and endangered plant and animal species. The segment connecting the Clear Sky and Levee substations would be built in three segments (legs). The first leg would pass just south of Homestead and Florida City, then travel north to SW 120th St. Major land use includes fields, pastures, row crops, tree nurseries, and citrus groves.

During multiple public meetings and the public notice comment period, over 20,000 comments were received. Those that pertain to the transmission line corridors included concerns about viewscape and enjoying the National Park experience. Underground transmission lines were considered but the technology may not be available to support the high temperatures over long distances. This issue is currently being evaluated as part of the remand from the State of Florida to review the approved State Certification and will be considered as part of the Corps' LEDPA analysis.

Any of the three portions of the West corridor could also potentially affect four wood stork colonies. The distance between the four wood stork colonies varies from less than 500 ft to 12 mi. The proposed work is also being coordinated to ensure that any proposed work that could modify a Congressionally authorized Comprehensive Everglades Restoration Plan (CERP) project would require review and approval pursuant to Section 14 of the Rivers and Harbors Act of 1899 (33 U.S.C. § 408) (TN4746). The three options within the West corridor may also be inconsistent with the County Code and Comprehensive Development Master Plan. Detailed impact analysis and citations explaining this conclusion are provided in the State of Florida, Division of Administrative Hearings, DEP OGC Case No. 09-3107 document in sections entitled, *"Impacts Associated with Proposed Transmission Line Corridors within and adjacent to the Everglades National Park"* and *"Impacts to Conflict with County Code Section 338, East Everglades Area of Critical Environmental Concern" (*State of Florida 2012-TN1248*).*

The proposed transmission facilities between the Clear Sky and Pennsuco substations traverse the King's Highway Pineland within an existing right-of-way. A number of Federally threatened and endangered plants are known to occur within pine rockland habitats of Miami-Dade County, including the Bartrams' scrub-hairstreak (*Strymon acis bartrami*) and the Florida leafwing (*Anaea troglodyte floridalis*), which rely upon the non-listed pineland croton (*Croton linearis*). The proposed design limits impacts within the King's Highway Pineland to 0.84 ac by using areas that have been previously disturbed. All areas of construction would be isolated from adjacent areas through installation of silt fencing to limit disturbance. FPL would also be required to conduct pre-construction/pre-clearing surveys to provide an updated assessment for listed species, which shall note all habitat, occurrence, or evidence of listed species. FPL would be required to follow Florida Fish and Wildlife Conservation Commission and U.S. Fish and Wildlife Service (FWS) current survey protocols for all listed species that may occur within the site and associated facilities prior to conducting detailed surveys.

Only one transmission line corridor will be built in the West corridor; however, at a point near SW 120 St. and theoretical SW 204 Avenue, the West corridor diverges into three different options or sub-routes that converge at the Levee substation. The options are described in greater detail below.

K.5.1.1 West Secondary Corridor

FPL acquired the Clear Sky-Levee right-of-way in the 1960s and early 1970s in anticipation of the future need for electrical facilities to serve electrical load growth in Miami-Dade County and southeast Florida. Approximately 7.4 mi of this right-of-way was encompassed by the addition of the Everglades National Park Expansion Area to the ENP in 1989. As a result, a total of approximately 12 mi of FPL's existing right-of-way is proposed for relocation, including a short portion that was encompassed by the 8.5 Square Mile Area (SMA) project (immediately south of the ENP). The remaining portion of the right-of-way to be relocated extends across the southeast corner of Water Conservation Area 3B (WCA-3B) immediately north of ENP. This portion of the existing FPL right-of-way is the West Secondary corridor (Figure K-3).

The West Secondary corridor starts at SW 120th Street and theoretical SW 204 Avenue in the 8.5 SMA and continues to follow FPL's existing right-of-way directly northward through the ENP Expansion Area for approximately 7.4 mi to U.S. 41/Tamiami Trail. There the West Secondary corridor crosses U.S. 41/Tamiami Trail and then turns northeastward along FPL's existing right-of-way to its intersection with Krome Avenue. The West Secondary corridor is approximately 330 to 370 ft wide, is wholly located within the existing FPL right-of-way, and is located approximately 2 mi inside the current ENP boundary. This right-of-way is privately owned by FPL even though it is located inside ENP. The total length of FPL's West Secondary corridor is approximately 51 mi.

This corridor was eliminated from detailed analysis prior to the issuance of the Corps' public notice and publication of the draft EIS due to the proposed land exchange between the U.S. Department of the Interior and FPL, which included the exchange of the existing FPL right-of-way through the ENP (known as the West Secondary corridor) for a replacement right-of-way located adjacent to the existing L-31N Canal (known as the West Preferred corridor-discussed below). The land exchange provides the opportunity to minimize impacts on high-quality wetlands within the ENP by collocating the new transmission facilities with existing disturbed linear features. The West Secondary corridor contains impacts on 190.63 ac of higher quality wetlands, 0.94 ac of surface-water impacts, and 23.67 ac of exotic dominated wetlands.

If this corridor were built, the environmental consequences would likely include disruption of natural sheet flow to the eastern boundary of ENP due to the construction of the access road for the transmission lines. Culverts were proposed as needed to maintain flow in an attempt to reduce impacts to sheet flow because the access roads are continuous.

In addition, programmatic general permits (PGPs) were developed by the USACE Regulatory Division for the East Bird Drive, Bird Drive, and North Trail wetland basins under SAJ-59 (DOA 1994-TN4749) and SAJ-74 (DOA 2005-TN4751). SAJ-59 was issued on April 12, 1989, as a PGP administered by Miami-Dade County to allow filling of wetlands in the East Bird Drive Basin (DOA 1989-TN4748; DOA 1994-TN4749). Mitigation funds were collected by Miami-

Dade County until September 30, 1999, and exotic plant species treatment was conducted in the East Everglades Expansion Area in ENP next to the transmission line corridors until 2013 (DOI and Miami-Dade County 2011-TN4750). The final version of the SAJ-74, which covered the Bird Drive and North Trail Wetlands, expired on May 31, 2010 (DOA 2005-TN4751). SAJ-74 was a PGP administered by Miami-Dade County. Even though the majority of mitigation funds were used primarily for acquiring conservation lands in Miami-Dade County outside of ENP, some mitigation funding was authorized for exotic species treatment in 34 various locations in and around ENP, some near the Tamiami Trail and Krome Avenue and some near SW 136 and Krome Avenue. Biological control agents psyllids (*Boreioglycaspis melaleucae)* and weevils (*Oxyops vitiosa*) were released in areas where Melaleuca, an invasive exotic plant, was located (USDA 2010-TN4747). The construction of this portion of the corridor would likely negatively affect the 34 locations where biological control agents were introduced as mitigation associated with these general permits (or PGPs). The construction of the transmission lines and access roads would result in the filling of wetlands that were likely recipient sites of mitigation funds, which were designated for wetland enhancement.

As part of the mitigation associated with Lake Belt limestone mines, the Lake Belt Mitigation Committee designed and constructed a 2 mi long subterranean seepage wall (Phase I) on the eastern side of the L-31N Levee to help prevent the loss of groundwater into the canal. For Phase II of the mitigation, an additional 3 mi long subterranean wall is currently being proposed. The Lake Belt Mitigation Committee seepage wall would likely not be affected by the construction of this corridor because the proposed transmission line corridor is located 2 mi west of this structure and impacts associated with this corridor would likely not impede flow toward the seepage wall.

There would also be an increased likelihood of impacts on the wood stork and other avian species by the construction and operation of the transmission towers and lines. Factors that contribute to avian electrocutions include bird size, bird behavior (does the species find the structures an attractive nuisance, are the structures conducive to perching and roosting), bird abundance and habitat use, and structural design (less than 60 in. vertically between wires). The closer the lines, the more likely a large bird's wingspan can touch both lines, resulting in electrocution. By moving the transmission line corridor 2 mi inside of ENP, there would likely be an increase in the possibility of impacts on the wood stork since there are 4 active wood stork colonies in close proximity. The closest colony is less than 500 ft away.

Because ENP has minimal invasive species in this area, the construction and maintenance of the new transmission line routes would introduce exotic plant species by creating upland/ disturbed areas that would allow exotics greater ability to colonize on the side slopes of the access road. Exotic seeds could also be introduced through the use of construction equipment brought in from other sites.

Viewshed impacts for ENP visitors would increase because the structures would be 2 mi inside the eastern boundary of the ENP. The pads would be 330 ft wide to accommodate a 230 kV line and two, 500 kV lines. Standard height for these structures would be a minimum of 135 ft.

K.5.1.2 West Preferred Corridor

The West Preferred corridor deviates from the West Secondary corridor at SW 120th Street and theoretical SW 204 Avenue in the 8.5 SMA and continues east along a portion of the southern boundary of ENP, and then continues north along the L-31N Levee. The West Preferred corridor crosses U.S. 41/Tamiami Trail and then turns northeastward continuing along Krome Avenue to its intersection with the West Secondary corridor. The West Preferred corridor is approximately 330 to 370 ft wide and is wholly located within the land swap area, whereby FPL will swap the West Secondary corridor land for the land directly west of the L-31N Levee, thereby moving the ENP boundary westward. This right-of-way is privately owned by FPL. The total length of FPL's West Preferred corridor is approximately 52 mi; the length where it differs from the West Secondary corridor is 1 mi.

Part of the West Preferred corridor abuts the eastern perimeter of the ENP, which is characterized by high-quality wetlands, is located closer to four existing wood stork colonies, and is located predominantly inside the current eastern boundary of ENP. This corridor has the potential to be the most damaging on ENP viewscape and wood stork colonies. Portions of the West Preferred corridor outside of ENP contain disturbed wetlands with some agricultural land, limerock quarries, and scattered urban development. Based on conceptual designs, construction of transmission facilities within the West Preferred corridor would cause impacts on approximately 198.92 ac of higher quality wetlands, 0.31 ac of surface waters, and 28.11 ac of exotic dominated wetlands resulting in 227.34 ac of permanent impacts on jurisdictional wetlands.

If this corridor were built, the environmental consequences would likely include impacts on Federal projects, including the L-31N Levee, Modified Water Deliveries to Everglades National Park (Mod Waters), and other CERP components. Building an access road with the associated pads at the toe of slope on the western side of the L-31N Levee would likely affect the structural integrity of the levee and would require authorization pursuant to 33 U.S.C. § 408 (TN4746). The Mod Waters project and several CERP projects, including the refurbishment of several water control structures, were designed to bring water to the eastern part of ENP.

In addition, PGPs were developed by the USACE Regulatory Division for the East Bird Drive, Bird Drive, and North Trail wetland basins under SAJ-59 (DOA 1994-TN4749) and SAJ-74 (DOA 2005-TN4751). SAJ-59 was issued on April 12, 1989, as a PGP administered by Miami-Dade County to allow filling of wetlands in the East Bird Drive Basin (DOA 1989-TN4748; DOA 1994-TN4749). Mitigation funds were collected by Miami-Dade County until September 30, 1999, and exotic plant species treatment was conducted in the East Everglades Expansion Area, near the transmission line corridors in ENP until 2013 (DOI and Miami-Dade County 2011-TN4750). The final version of the SAJ-74, which covered Bird Drive and North Trail Wetlands, expired on May 31, 2010 (DOA 2005-TN4751). SAJ-74 was a PGP administered by Miami-Dade County. Even though the majority of mitigation funds were used primarily for acquiring conservation lands in Miami-Dade County outside of ENP, some mitigation funding was authorized for exotic species treatment in 34 various locations in and around ENP, some near the Tamiami Trail and Krome Avenue and some near SW 136 Street and Krome Avenue. Biological control agents psyllids (*Boreioglycaspis melaleucae)* and weevils (*Oxyops vitiosa*) were released in areas where Melaleuca, an invasive exotic plant, was located (USDA 2010-

TN4747). The construction of this portion of the corridor would likely negatively affect the 34 locations where biological control agents were introduced as mitigation associated with these general permits (or PGPs). The construction of the transmission lines and access roads would result in the filling of wetlands that were likely recipient sites of mitigation funds designated for wetland enhancement.

As part of the mitigation associated with Lake Belt limestone mines, the Lake Belt Mitigation Committee designed and constructed a 2 mi long subterranean seepage wall (Phase I) on the eastern side of the L-31N Levee to help prevent the loss of groundwater into the canal. For Phase II of the mitigation, an additional 3 mi long subterranean wall is currently being proposed. If the access road and fill pads were constructed, the modeling associated with this seepage wall would need to be recalculated to determine if the construction of the access road and fill pads would be beneficial or detrimental to the seepage wall project.

There would also be an increased likelihood of impacts on the wood stork and other avian species by the construction and operation of the transmission towers and lines. Factors that contribute to avian electrocutions include bird size, bird behavior (does the species find the structures an attractive nuisance, are the structures conducive to perching and roosting), bird abundance and habitat use, and structural design (less than 60 in. vertically between wires). By moving the transmission line corridor 2 mi east, there would likely be a reduction in the possibility of impacts on the wood stork because there are four active wood stork colonies in close proximity. The closest colony is less than 500 ft away.

Because ENP has minimal invasive species in this area, the construction and maintenance of the new transmission line routes would create upland/disturbed areas that would allow exotics greater ability to colonize. Exotic seeds could also be introduced through the use of construction equipment brought in from other sites.

Viewshed impacts for ENP visitors would be reduced because the structures would be moved to the eastern boundary of the ENP.

K.5.1.3 West Consensus Corridor

The West Consensus corridor deviates from the West Preferred corridor at SW 120th Street and theoretical SW 187 Avenue in the 8.5 SMA and continues to follow the L-31N Levee northward. The West Consensus corridor turns east, just south of the Krome Detention Center and then turns north within a large swath of the Bird Drive Basin. The West Consensus corridor crosses U.S. 41/Tamiami Trail and heads north through the Pennsuco Wetland Basin until it intersects with the infrastructure associated with the Levee substation where it then turns east. The West Consensus corridor is approximately 330 to 370 ft wide, is located within the existing FPL right-of-way, and is proposed to be located to the east of the current ENP boundary. The total length of FPL's West Consensus corridor is approximately 52.5 mi; it differs in length from the West Preferred corridor by 0.5 mi.

The West Consensus corridor is the latest alternative that was added to the Corps' permit application evaluation in December 2013, prior to publication of the Corps' public notice. It differs from the West Preferred corridor only in that portions of the segment have been shifted to the east to avoid affecting the majority of the eastern perimeter of the current boundary of ENP.

This corridor still crosses a landscape consisting mostly of wetlands and has a small impact on the current ENP boundary; the wetlands range in quality from high quality to disturbed, but FPL states that its use would reduce the potential for adverse impacts on multiple Federally endangered species (FPL 2013-TN2941).

Based on conceptual designs, construction of transmission facilities within the West Consensus corridor would contain impacts on 169.53 ac of higher quality wetlands, 0.29 ac of surface waters, and 42.24 ac of exotic dominated wetlands resulting in 212.06 ac of permanent impacts; which is a reduction of approximately 15 ac of wetland impacts, compared to the West Preferred corridor.

FPL is in the process of acquiring lands to obtain the right-of-way to construct this corridor. The selection of the West Consensus corridor as FPL's preferred alternative for the West corridor was confirmed in FPL's letter to the USACE dated July 8, 2016 (FPL 2016-TN4745). Prior to that date, FPL requested that both the West Preferred and West Consensus corridors be authorized as options in the USACE final decision document; however, the Corps determined that a LEDPA determination could not be reached pursuant to Section 404 of the Clean Water Act with two potential options.

Impacts on sheet flow inside ENP would be nonexistent because the corridor would be located outside ENP boundaries. Access roads would need to be culverted so as not to interfere with sheet flow of adjacent wetlands located within the Bird Drive, Pennsuco, or North Trail wetland basins.

If this corridor were built, the environmental consequences would likely include de minimis impacts on Federal projects, including the L-31N Levee, Mod Waters, and other CERP components because it completely avoids the Federal projects.

In addition, PGPs were developed by the USACE Regulatory Division for the East Bird Drive, Bird Drive and North Trail wetland basins under SAJ-59 (DOA 1994-TN4749) and SAJ-74 (DOA 2005-TN4751). SAJ-59 was issued on April 12, 1989, as a PGP administered by Miami-Dade County to allow filling of wetlands in the East Bird Drive Basin (DOA 1989-TN4748; DOA 1994-TN4749). Mitigation funds were collected by Miami-Dade County until September 30, 1999, and exotic plant species treatment was conducted in the East Everglades Expansion Area, next to the transmission line corridors in ENP until 2013 (DOI and Miami-Dade County 2011-TN4750). The final version of the SAJ-74, which covered the Bird Drive and North Trail Wetlands, expired on May 31, 2010 (DOA 2005-TN4751). SAJ-74 was a PGP administered by Miami-Dade County. Even though the majority of mitigation funds were used primarily for acquiring conservation lands in Miami-Dade County outside of ENP, some mitigation funding was authorized for exotic species treatment in 34 various locations in and around ENP, some near the Tamiami Trail and Krome Avenue and some near SW 136 Street and Krome Avenue. Biological control agents psyllids (*Boreioglycaspis melaleucae)* and weevils (*Oxyops vitiosa*) were released in areas where Melaleuca, an invasive exotic plant, was located (USDA 2010-TN4747). The construction of this portion of the corridor would likely negatively impact the 34 locations where biological control agents were introduced as mitigation associated with these general permits (or PGPs). The construction of the transmission lines

and access roads would result in the filling of wetlands that were likely recipient sites of mitigation funds designated for wetland enhancement.

As part of the mitigation associated with Lake Belt limestone mines, the Lake Belt Mitigation Committee designed and constructed a 2 mi long subterranean seepage wall (Phase I) on the eastern side of the L-31N Levee to help prevent the loss of groundwater into the canal. For Phase II of the mitigation, an additional 3 mi long subterranean wall is currently being proposed. If the access road and fill pads were constructed, the modeling associated with this seepage wall would need to be recalculated to determine if the construction of the access road and fill pads would be beneficial or detrimental to the seepage wall project.

The Lake Belt Mitigation Committee seepage wall would likely not be affected by the construction of this corridor because this corridor is located 1 mi or more away from the mitigation site.

This corridor would have the least adverse impacts on the wood stork and other avian species by constructing the transmission towers and lines closer to a disturbed/urban area, moving the impacts farthest away from four existing wood stork colonies.

Factors that contribute to avian electrocutions include bird size, bird behavior (does the species find the structures an attractive nuisance, are the structures conducive to perching and roosting), bird abundance and habitat use, and structural design (less than 60 in. vertically). By moving the transmission line corridor farther east, outside of ENP, there would likely be a reduction in the possibility of impacts on the wood stork and other avian species.

The majority of construction would occur outside of ENP; therefore, there is a decreased likelihood of introducing exotic plant species into ENP through the construction and maintenance of the new transmission line route. Impacts on the park would be limited to the southern boundary along SW 120th Street, where the corridor would still be partially located in the park.

Impacts on the viewshed for ENP visitors would be greatly reduced because the majority of the construction would occur outside of ENP. The impacts that would likely still be inside ENP would be situated around the east-west route along SW 120 Street.

K.5.1.4 East Preferred Corridor

The proposed East Preferred corridor transmission lines would be largely collocated in an existing right-of-way or other linear/transportation corridors. The segment connecting the Clear Sky and Davis substations traverses a mostly rural landscape consisting predominantly of agricultural land interspersed with wetlands and rangeland and with widely scattered urban areas and forests. The segment between the Davis and Miami substations would traverse a mostly urban landscape but would be built mostly along existing roadways.

The proposed East Preferred corridor would include an overhead, single-circuit 230 kV transmission line. This line would provide connection from the Clear Sky substation to the existing Davis and Miami substations located in Miami-Dade County. The Davis substation is

located at the intersection of SW 136th Street and SW 127th Avenue. The Miami substation, located within the city limits of Miami, is at the intersection of SW 2nd Avenue and SW 3rd Street along the Miami River. There would be improvements made to both substations to accommodate the new 230 kV line. The Clear Sky-Davis portion of the East Preferred corridor would be constructed within an existing, 19 mi long, multi-circuit FPL transmission line right-of-way.

This right-of-way has the ability to accommodate the proposed single-circuit 230 kV line without the need for additional right-of-way. However, for a portion of the Davis-to-Miami corridor, new rights-of-way would be required, but much of the proposed corridor includes existing transportation rights-of-way (e.g., U.S. Route 1, Metrorail). The Davis-Miami portion of the East Preferred corridor is approximately 18 mi long and is predominantly within an existing transmission line corridor with the exception of the portion that runs along the US-1 corridor. There are several areas where there is more uncertainty and where the proposed expanded corridor exceeds the 330 ft width. The most extensive expansions occur from SW 140 Street to SW 128 Street and between SW 127 Avenue and theoretical SW 124 Avenue (which affects the Nixon-Smiley Pineland, a Miami-Dade County, Environmentally Endangered Land); along US-1 from SW 100 Street to SW 80 Street (which affects the Snapper Creek Canal crossing, a Federal project); along US-1 from Orange Street to just north of Bird Avenue (which does not affect wetlands or canal crossings); along US-1 from SW 28 Terrace. to SW 27 Terrace. (which does not affect wetlands or canal crossings); and along US-1 near SW 22 Terrace. until the terminus at the Miami substation (which affects the crossing underneath the Miami River, a Federal project). Please note that the impacts/crossings of Federal projects would require authorization pursuant to 33 U.S.C. § 408 (TN4746).

Various environmental consequences are associated with the proposed East Preferred corridor. Impacts on residential and commercial areas traversed by East Preferred corridor segments would include aesthetics, vegetation removal and the scale of the poles. The proposed transmission lines and utility poles would permanently alter the eastern skyline for Miami-Dade residents and property owners, especially those who live in units above the tree line. The proposed East Preferred corridor would impact the dense urban environment of US1 from the Miami substation in downtown Miami to the southern end of the Busway near SW 136th Street (C-100A Canal at US-1). US-1 has special Miami-Dade County designations and is classified as a Gateway corridor. Anticipated aesthetic impacts and impacts to trees and vegetation would adversely affect the quality of this corridor. Existing street trees provide shelter for pedestrians and bicyclists from the elements such as sun, heat, rain, wind, and vehicles. Impacts to this urban vegetation will additionally affect the aesthetics of US-1 by removing natural buffers to incompatible land uses (as determined by Miami-Dade County) and street fixtures. The proposed East Preferred corridor would also potentially impact pedestrian gateways (bridges) at US-1 and NW 12th Avenue and US-1 and SW 88th Street. Overhead lines in segments along US-1 may restrict efforts to build high-quality development projects designed for pedestrians. Removal of trees in the urban areas throughout the East Preferred corridor is likely to cause an increase in greenhouse gas emissions and the urban heat island effect.

If this corridor were built, the environmental consequences would likely include de minis impacts to Federal projects, including the L-31N Levee, Mod Waters and other CERP components

because this corridor is located 18 m or greater away from the L-31N Levee and Mod Waters, projects. The distance factor would also be the rationale as why the CERP components adjacent to ENP or the Bird Drive Basin would not be affected by the East Preferred corridor. CERP components near the eastern portion of Miami-Dade County in the Biscayne Bay Coastal Wetlands would also likely experience de minimis impacts because the East Preferred corridor proposes only 0.06 ac of impacts on coastal wetlands. Please note that the impacts/crossings of Federal projects would require authorization pursuant to 33 U.S.C. § 408 (TN4746).

Mitigation associated with PGPs SAJ-59 (DOA 1994-TN4749) and SAJ-74 (DOA 2005-TN4751) would likely not be affected by construction of this corridor because it is located 18 mi or more away from the mitigation site.

The Lake Belt Mitigation Committee seepage wall would likely not be affected by the construction of this corridor because this corridor is located 18 mi or more away from the mitigation site.

Factors that contribute to avian electrocutions include bird size, bird behavior (does the species find the structures an attractive nuisance, are the structures conducive to perching and roosting), bird abundance and habitat use, and structural design (at a minimum 60 in. between wires).

By moving the transmission line corridor further east, there would likely be a reduction in the possibility of impacts on the wood stork and but an increase in impacts on other avian species. In the southern portion of this corridor from the point where the transmission lines leave the Turkey Point site, continuing north to theoretical SW 261 Street then heading west to approximately SW 122 Avenue, construction of East Preferred corridor infrastructure may also affect 0.06 ac of coastal wetlands and wetland hydrology and sheetflows or freshwater flows to Biscayne National Park (BNP), habitat supporting threatened and endangered plant and animal species, and protected lands adjacent to the transmission lines. The impacts on wood stork colonies would be minimal because the proposed fill locations are more than 18.6 mi away from the colonies throughout most of the East Preferred corridor.

Because the majority of construction would occur outside of BNP, there is a decreased likelihood of introducing exotic plant species into BNP through the construction and maintenance of the new transmission line route.

Impacts on the viewshed BNP visitors would be minimal because the East Preferred corridor would be constructed within an existing transmission line corridor, which already contains transmission lines and poles that are visible from BNP.

K.6 Mitigation Measures

Avoidance and minimization are being partially addressed by FPL's final selection of the West Consensus corridor, which has the least amount of impacts on wetlands in the West corridor. In addition, impacts on exotic dominated wetlands (exotic wetland hardwoods) and other non-wetland waters (canals, ditches) are helping to minimize impacts on high-quality wetlands. Further avoidance and minimization will be considered and addressed once a final, refined layout is received, according to FPL's letter to the USACE, dated July 8, 2016 (FPL 2016-TN4745).

FPL has identified the West Consensus corridor as its preferred corridor alignment alternative for the West corridor. The West Consensus corridor has the least amount of impacts on wetlands of the West corridor alignment alternatives. This alternative also affects exotic dominated wetlands (exotic wetland hardwoods) and other non-wetland waters (canals, ditches,) in order to avoid and minimize impacts on high-quality wetlands. Further avoidance and minimization will be considered and addressed once a final, refined layout is received, according to FPL's letter to the USACE dated July 8, 2016 (FPL 2016-TN4745).

Unavoidable impacts on herbaceous wetland impacts are proposed to be mitigated through the purchase of credits from the ENP Hole-in-the-Donut (HID) In-Lieu-Fee Mitigation Project. These credits were calculated through the use of the HID's functional assessment methodology Uniform Mitigation Assessment Methodology. Unavoidable impacts on coastal wetlands are proposed to be mitigated through the purchase of credits from the FPL Everglades Mitigation Bank (EMB). These credits were calculated through the use of the EMB's functional assessment methodology, Wetland Assessment Technique for Environmental Reviews (WATER). Final mitigation calculations will be documented in the USACE's record of decision after the Corps determines the LEDPA pursuant to Section 404 of the Clean Water Act (40 CFR 230-TN427).

The NRC is currently in consultation with the FWS pursuant to Section 7 of the Endangered Species Act (73 FR 76272-TN973). The NRC determined that the proposed transmission lines may affect, and are likely to adversely affect the Florida panther. FWS typically considers impacts on the Florida panther by determining the projects impacts on panther habitat units (PHUs). FWS has a pre-determined amount of PHUs associated with each EMB WATER credit. The FWS determines whether the amount of WATER credits will compensate for the PHUs lost as a result of the construction of this project. When consultation is complete, FWS will likely prescribe the number of WATER credits the applicant must acquire in order to offset impacts on the panther by using the WATER functional assessment methodology. Final mitigation calculations will be documented in the USACE's record of decision after consultation with FWS is complete.

Other mitigative measures proposed will attempt to reduce impacts on avian species. Impacts can include collisions with powerlines and electrocution. Collisions are proposed to be reduced through the use of flight diverters and perch discouragers. Flight diverters are typically attached to the ground wire and are intended to increase visibility of the powerlines. Marker balls are an example of a flight diverter. They are brightly colored, lightweight, and round, and are secured on distribution lines to increase visibility. Wood storks are especially vulnerable to collisions with overhead wires due to their size, body mass, and flight behavior. Abundance of bird species, habitat use and structural design (lines vertically spaced less than 60 in. apart) also contribute to avian collisions with overhead lines.

Perch discouragers can include perch guards, bird platforms, and insulator shield designs, and are intended to keep birds from using powerlines and poles for perching. Bird guano is especially problematic in these perching scenarios. When feces build up on the insulator structures or skirts, the insulating qualities become compromised and this can cause an electrical fault. Another major issue is that arcing can occur when birds produce a large stream

of excrement. Arcing can happen when a strong current jumps a gap in a circuit. A bird may be electrocuted without even touching both powerlines.

Additionally, raptors can use these structures to locate prey because the landscape in South Florida is flat, thus giving them a hunting advantage.

FPL has proposed to conduct a monitoring study during the first wood stork nesting season after construction has commenced along the marked stretch of the transmission lines near the currently known wood stork colonies. Their proposed monitoring study is based on a previous study conducted by Frederick and Deng (1997-TN4752) on the FPL Levee-Midway Transmission Line to confirm whether or not these structures are effective in reducing impacts to avian species.

K.7 404 (b)(1) Guidelines and the Least Environmentally Damaging Practicable Alternative

As part of the National Environmental Policy Act process, the USACE evaluated the corridors in this appendix. The Corps considered all reasonable alternatives, including those eliminated from detailed study, alternatives outside of the Corps' jurisdiction, and the no-action alternative. The Corps evaluated the environmental consequences of the East corridor, and several alignments in the West corridor, and proposed mitigative measures. As part of its ongoing review of the project, the Corps will further refine its review of practicable alternatives of the proposed project as required by the 404(b)(1) Guidelines (40 CFR 230-TN427). This analysis will ultimately yield the LEDPA determination for this proposal, which will be included in the USACE record of decision.

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11. ABSTRACT (200 words or less)
This environmental impact statement (EIS) has been prepared in response to an application submitted to the U.S. Nuclear Regulatory Commission (NRC) by Florida Power and Light Company (FPL) for two combined construction permits and operating licenses) combined licenses or COLs). The proposed actions related to the FPL application are (1) NRC issuance of COLs for two new power reactor units (Units 6 & 7) at the Turkey Point Nuclear Power Plant site in Miami-Dade County, Florida, and (2) U.S. Army Corps of Engineers (USACE) decision to issue, deny or issue with modifications a Department of the Army (DA) permit to perform certain dredge and fill activities in waters of the United States and to construct structures in navigable waters of the United States related to the project.

This EIS documents the review team's analysis, which considers and weighs the environmental impacts of constructing and operating two new nuclear units at the Turkey Point site and at alternative sites, including measures potentially available for reducing or avoiding adverse impacts.

After considering the environmental aspects of the proposed action before the NRC, the NRC staff's recommendation to the Commission is that the COLs be issued as proposed. This recommendation is based on (1) the application, including the Environmental Report (ER), submitted by FPL, (2) consultation with Federal, State, Tribal, and local agencies; (3) the review team s independent review· (4) the consideration of public comments received on the environmental review· and (5) the assessments summarized in this EIS, including the potential mitigation measures identified in the ER and this EIS.

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